SEPTEMBER, 1959

airlift

WORLD AIR TRANSPORTATION

In This Issue:

- IDLEWILD: WORLD AIRPORT NO. 1
  (A 14-page Special Report)
- SPECIAL: JETLINER STATUS REPORT

ATC Radar Operators know **who** and **where** you are with the ***wilcox*** 714 ATC TRANSPONDER

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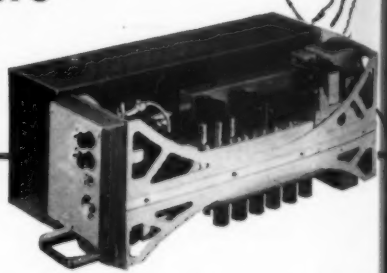

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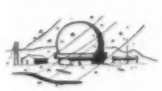

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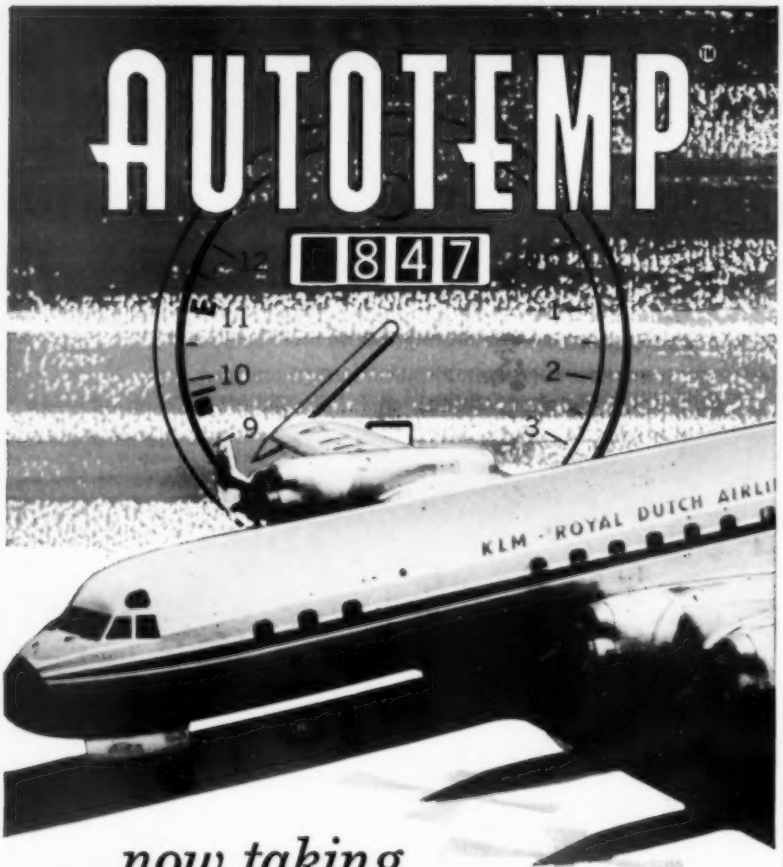
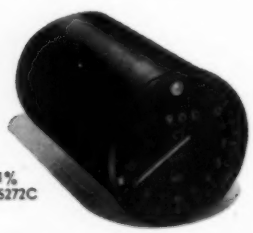


...now taking Lockheed ELECTRA'S *temperature...to 1°C.*



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Full information is contained in our Bulletin BH183 available for the asking!

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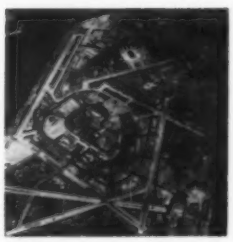
WORLD AIR TRANSPORTATION

An AMERICAN AVIATION Publication Since 1937

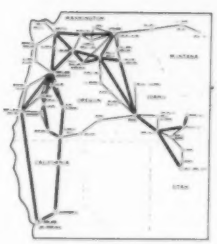


ON THE COVER: IDLEWILD

Air view of the biggest airport operation in the world. For a 15-page special report on Idlewild, its tremendous expansion, new terminals, facts and figures, see pages 29 to 50.

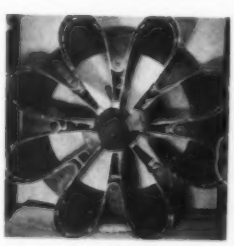
A CURE FOR BRITISH AIR TRANSPORT

Air transport in Great Britain is not expanding with its competition and a role for the independents is one cure. Read guest editorial by L. C. Hunting, director Hunting Aircraft, Ltd., for his answers. Page 54.



LOCALS AND NEW TURBINES

For years the local airlines awaited a "DC-3 Replacement" and finally the Fairchild F-27 came along. For an on the spot report of its success with its first user, West Coast Airlines, see Page 55.



GE QUIETS THE 880

Two of the bigger unknowns about jets—noise suppression and thrust reversal—are being licked for the Convair 880 with thrust losses below those anticipated. For details, see Page 65.

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Coming Next Issue: a special, data-packed report on the Douglas DC-8 which enters commercial service this month with both United and Delta Air Lines. Every significant angle of this newest jet transport will be analyzed in articles which tell how it is different, what it will do and how it came to be.

WESTERN AIRLINES PICKS *airtorq*

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Quesada 0, Douglas 0, Cargo 0

This is a sad, sad story. It is especially sad because it's true.

The Quesada-Monroney plan to legislate guaranteed loans for operators ordering new all-cargo aircraft as a government push to the development of a big air cargo industry has hit a real snag.

Why? Because no less a person than the quiet, reserved and ordinarily conservative Secretary of the Air Force, James H. Douglas, blocked the plan at interdepartmental meetings at the White House.

Does that mean that the Secretary of the Air Force opposes the development of an air cargo industry?

Of course not.

Then why was he the lone government hold-out against a constructive program? Because he has a price for his support. The Secretary has come out of his well-insulated isolation booth in the Pentagon to fight doggedly for funds to provide Military Air Transport Service with a fleet of costly new jet passenger planes.

Is that bad? Well, that depends on your point of view. If you favor state socialism, if you favor government encroachment on private business, then you must favor modernizing MATS.

And it just happens that FAA Administrator Elwood "Pete" Quesada, who was nothing less than a Lieutenant General in USAF himself, believes that MATS (and the government) should get out of the airline business and let commercial enterprise get on with the job.

It is Mr. Queseda who has led the fight to block MATS from getting new jet passenger planes. Does this mean that Mr. Quesada is against giving more airplanes to MATS? Not at all. He just happens to think that MATS should acquire the special-purpose type of military aircraft which the military needs for strategic purposes and stop acquiring more airline planes with which to compete with private enterprise.

So Messrs. Douglas and Quesada have been at loggerheads over a principle. Mr. Douglas wants his airline planes, and since Mr. Quesada blocked him, Mr. Douglas has very neatly blocked the all-cargo program which Mr. Quesada and Senator Mike Monroney of Oklahoma had hoped to rush through Congress during the session just closed.

It is rather strange to see Secretary Douglas, a former director of American Airlines, take such a determined attitude toward strengthening and continuing a government-owned and government-operated airline—"The People's Airline"—it has been called. An extremely valuable and vital organization within its original concept, MATS has strayed far, far away from its assigned job. It has become a prize example of an entrenched and creeping state socialism at work in an unsuspecting republic. It transports such vast numbers of families with babies that it has aptly been referred to as "the longest diaper line in the world."

There is much to be said for Mr. Quesada's position. If MATS is permitted to modernize its Soviet-style airline, it stands to reason that privately-owned and operated airlines won't be able to order as many new aircraft so long as they can't control the complete transport market. The big issue of whether MATS will be permitted to continue to grab off under pure state socialism a very large transportation market is now at hand. Congress refused to provide the funds at the session just closed, but MATS will try and try again as all such bureaucratic organisms do.

The MATS argument for new airline jets is quite spurious. No military organization has ever had the gall to ask for funds for its own railroad. Why should a military organization have an airline that is competitive? Out-size and special duty airplanes, sure. But somebody has been doing some mighty screwy and mixed-up thinking about the true MATS role, and we are very sorry to see an able, sincere man like Secretary Douglas permit himself to be taken—and taken he is.

So—all the well-laid plans for a real boost for air cargo, and the development of efficient and low-operating-cost cargo airplanes, have to be laid aside until next session. We hope Mr. Quesada continues the battle. This country has done enough progressing toward Soviet ideology without adding some more in the air transport business. Meantime, we wish Mr. Douglas, who has already been reprimanded by higher authorities for his lobbying, would harken back to the principles of private enterprise on which this country and its progress have been founded. MATS should get all of the special-type military airplanes it needs. But let it get the hell out of the airline business.

A New Idea is Rare

It's been a long time since we've heard of a new idea as good as the one that Alaska Airlines is trying out between Seattle and Fairbanks.

It is using recorded tape cabin announcements by governors, mayors and chamber of commerce officials, in place of stewardess announcements. On departing from Seattle, for example, the Governor of Washington bids farewell to the passengers over the cabin speaker system, tells them to hasten back. When the plane is flying high over Juneau, the Governor of Alaska bids welcome and describes some of the beauties of the 49th state. When the plane nears Fairbanks the Mayor welcomes everyone, tells the passengers to fasten seat belts and stop

smoking, and assures them of a good time in his city.

A very smart gimmick, say we, susceptible of being used around the world on those flights which are primarily for tourists. Imagine, for example, being on a Pan American plane crossing the border of India and having a taped welcome by Prime Minister Nehru describing some of the wonders of India and giving out some useful facts and figures.

Like many such good ideas, this one could easily be overworked. Imagine being on an American or TWA 707 flying across country and having a new Governor bid welcome every few minutes as each state is crossed. But then, how about Bob Hope making a few quips via tape as he welcomes a 707 to Los Angeles? Take it from here. Don't blame us, Alaska Airlines started it.

Try and Top This One

Ever hear of an airline stop without any ground personnel? There is one, and it might give some ideas to other local carriers serving small towns with marginal traffic potential.

Baker, Oregon, is served by West Coast Airlines. There is no WCA personnel at the airport or in town. If a customer wants service, he calls a Zenith long distance number (same as Enterprise in the east) to the next station and makes his reservation, WCA makes the stop, the passenger boards and picks up his ticket at the next station. System works okay, too. FAA has a station at Baker which eliminates any safety or operations problems. Thus Baker, Oregon, which might not otherwise be on the airline map, gets scheduled service.

From the Editor's Notebook

This is News?

Last month we noted a six-paragraph news story on Page 3 of The New York Times about a Canadian Family of three who avoided traffic problems by taking a 9,000-mile vacation trip in their own airplane. We read the story twice trying to figure out why this routine air trip was Page 3 news.

Isn't The New York Times aware that thousands of families take vacation trips by private airplane? Apparently not. Nor has the good, grey Times been aware of the transportation revolution that has taken place in the scheduled airline industry round the world. A tugboat outfit in New York can get a headline when it buys a barge, but an airline rates high if it gets a paragraph for ordering a fleet of jets at $5 million per.

It used to be that The New York Times was in the vanguard of all great scientific and industrial developments. But a vast worldwide revolution in the air has been ignored during the past ten to fifteen years. All transportation news in the Times is geared to steamships and tugboats. Yet airlines account for a sizeable percentage of advertising volume. One wonders if the editors ever get off Manhattan Island to see what's going on in the world.

Wayne W. Parrish

BEA EUROPE'S FOREMOST AIRLINE

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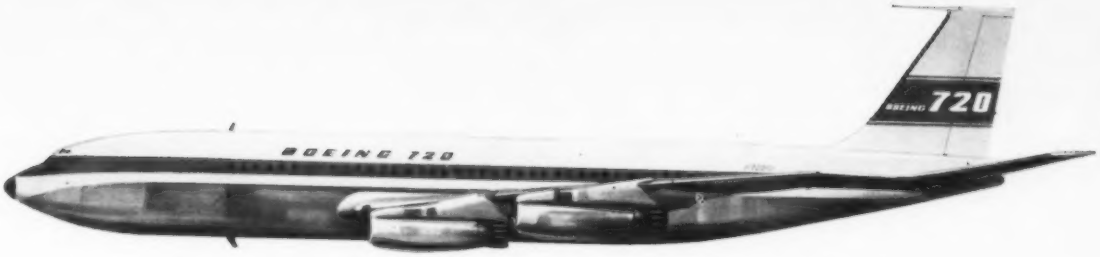
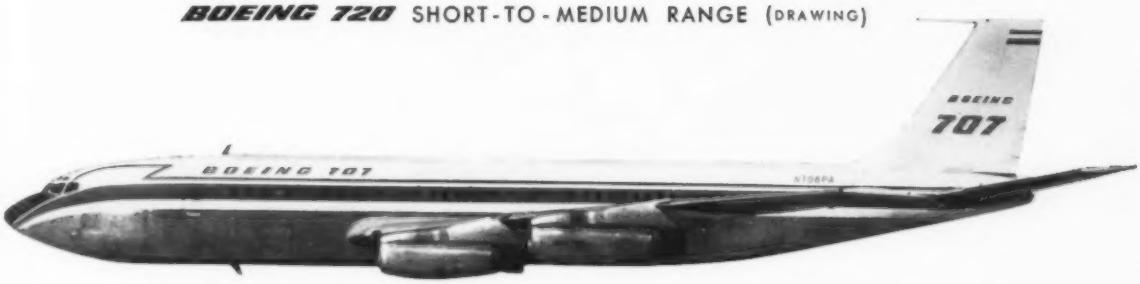
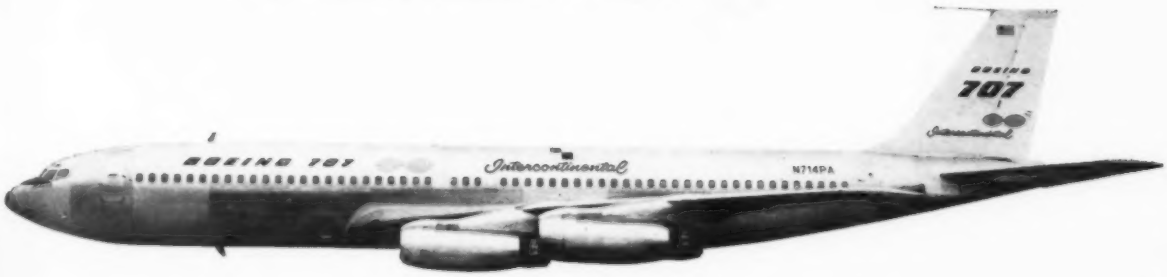


BOEING 720 SHORT-TO-MEDIUM RANGE (DRAWING)



BOEING 707 MEDIUM-LONG RANGE



BOEING 707 *Intercontinental* VERY LONG RANGE

Airline profit-makers

The Boeing jetliners shown above are designed for profitable operations over all airline routes, from short intercity segments to very long overocean stages.

Their outstanding earning power has already been demonstrated by the 707. Since going into service last October, this Boeing jet has attracted unprecedented load factors of 90 to 95%. Operators describe it as the most popular airliner in aviation history.

Within weeks the 707 Intercontinental—the world's longest-range jetliner—will begin commercial operations. With a range of more than 5000 miles with full passenger payload, it will fly nonstop over the longest stages of airline routes, at cruise speeds above 600 miles an hour.

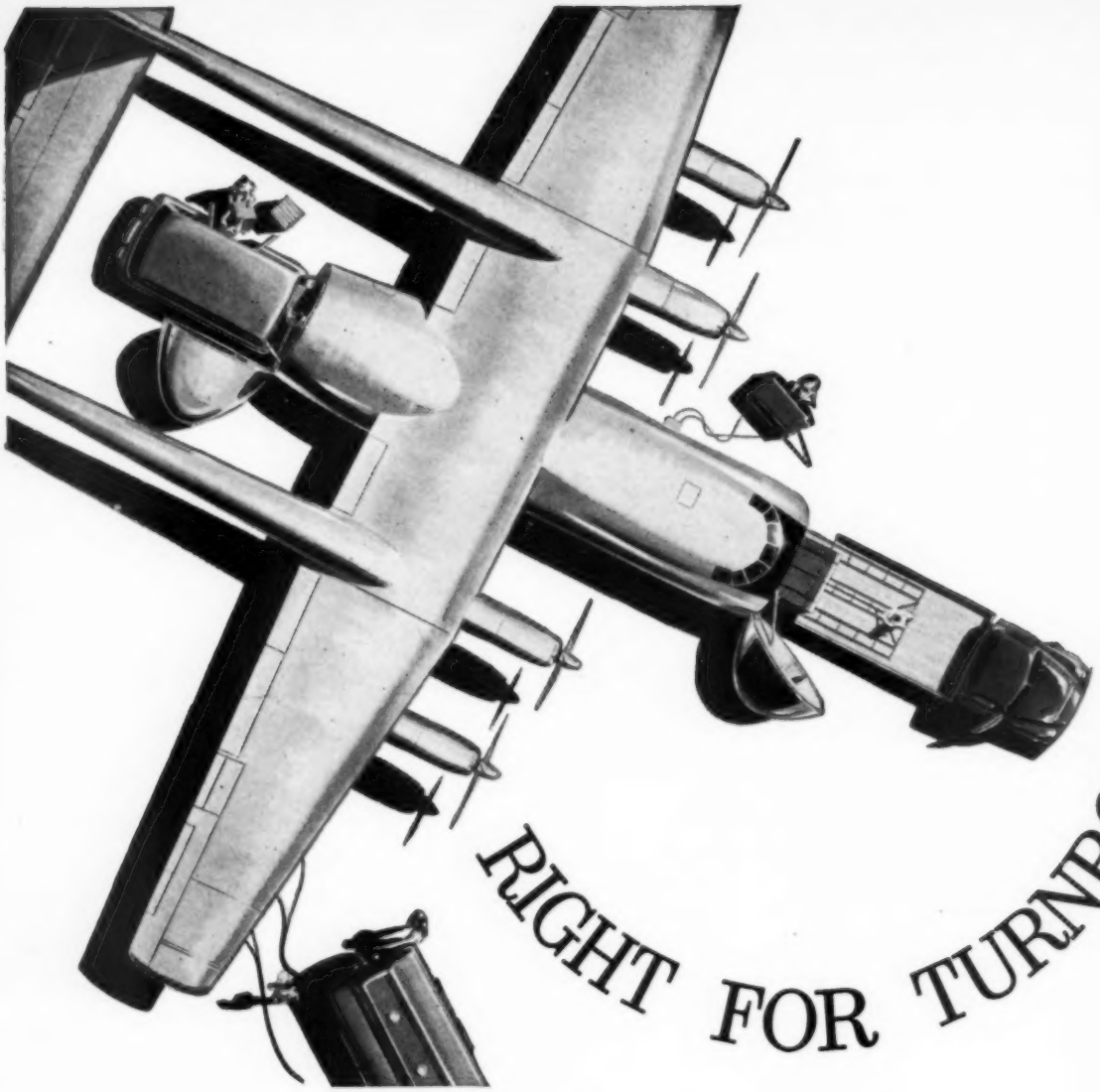
The 720 is the fastest airliner of its class, with a cruise speed of 614 miles an hour. Backed by Boeing's unequalled multi-jet experience, the 720 is an extremely versatile jetliner able to operate profitably over short intercity and medium-range routes.

Boeing jetliners, now in scheduled service on United States and international routes, are demonstrating tremendous earning power, extremely high initial utilization and unprecedented public acceptance.

These airlines have already ordered Boeing jets:

AIR FRANCE · AIR INDIA · AMERICAN
B.O.A.C. · BRANIFF · CONTINENTAL
CUBANA · IRISH · LUFTHANSA
PAN AMERICAN · QANTAS · SABENA
SOUTH AFRICAN · TWA
UNITED · VARIG · *Also* MATS

BOEING
Family of jet airliners



BIG FORE-AND-AFT DOORS AT PERFECT LOADING HEIGHT ENABLE THE ARGOSY TO LOAD AND UNLOAD WHOLE CARGOES IN UNDER 20 MINUTES

The less you handle cargo the cheaper the transport operation. This is true particularly of air freight where quick turnround is essential if costs are to be kept to a minimum. With the Argosy (AW650) a loading system is being developed that will enable the huge freight hold to be cleared and filled again in a few minutes. With full-width doors at either end of the fuselage, the load can be discharged at one end while new cargo is being loaded at the other.

High pressure refuelling ensures that a turnround can be completed in under 20 minutes. If the Argosy is used for mixed traffic—a role for which it is particularly suited—passenger and freight loading take place simultaneously.

The use of well proven components, particularly the Rolls-Royce Dart prop-jets, promise exceptional utilisation for round-the-clock operations.

PERFORMANCE

POWERED BY 4 ROLLS-ROYCE DART PROP-JETS

AIRCRAFT CRUISING SPEED: (14,000 r.p.m.) 296 m.p.h.
MAXIMUM PAYLOAD: 27,000 lb.
RANGE WITH FULL FUEL RESERVES AND 20,000 lb. PAYLOAD: 1,000 st.m.
SIZE OF HOLD: 46 ft. 8 in. (14.23 m.) x 10 ft. (3.05 m.)
FLOOR AREA: 426 sq. ft. (39.6 sq. m.)

THE ***Argosy*** BRINGS THE COST OF AIR FREIGHT DOWN TO EARTH

HAWKER SIDDELEY AVIATION, 32 Duke Street, St. James, London, S.W.I.

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LETTERS

A Toast to *AIRLIFT*

To the Editor:

As usual, one looks to *AIRLIFT* for the latest, most authentic information on air transportation, and in this case the story "TWA's Fast One-Year Come-Back" was no exception.

You would have received this letter before except that, despite your own two previous missions to Moscow, the sale of *AIRLIFT* is extremely limited on Red Square. They were all out of copies, which delayed my seeing your excellent article until we had returned to the United States.

Congratulations upon a fine job of writing craftsmanship and thanks for the kind things you said about our organization.

GORDON GILMORE, TWA
V.P., Public Relations
New York, N.Y.

A Lesson for the Press

To the Editor:

Your comments on "The Idlewild Mess" in the August issue of *AIRLIFT* certainly pinpointed the direct responsibility for the basic cause for the regrettable "Mob Scene" very recently staged by a tremendous group of supposedly well educated citizens.

It is to be hoped that your comments will be seen and read by the higher officials who are responsible for handling newscasts to the general public.

The tendency today is to play up every type of emergency in a most startling and dramatic manner and the morbid public are only too willing to respond to this fanfare, by immediately attempting to be on hand for a close view of other people's blood, pain and misery.

The day may come when this growing mob action by the public may prove to be very costly in the unnecessary waste of human lives and I believe the time has been reached when the Press, Radio and TV must start a campaign to educate the citizens of this country that they must not immediately flock to the scene of an existing emergency and that untrained mobs of spectators only hinder the officials who are attempting to properly safeguard human lives and public property during a period which requires unhindered action by well-trained personnel in use of all available rescue equipment.

JOHN H. TWEED, Manager
New Haven Municipal Airport
New Haven, Conn.

Accident Probe Problem

To the Editor:

I was particularly impressed with your two items entitled "Recklessness with Safety" and "The Idlewild Mess" in the August issue of *AIRLIFT*.

As to CAB safety investigations, I was much surprised, when I attended the hearing on our Electra accident, to discover how greatly the nature of the proceeding had changed from what it was, say, at the time of the Grand Canyon investigation. The impression that used to be given by a CAB accident hearing was of strict scientific objectivity. Newspapermen and other persons present invariably received the notion, quite correctly, that a group of experts was going about its job without fear or favor.

Under the new regulations, what you get in effect is an adversary proceeding. The various lawyers are made to appear to be less interested in ascertaining fact than in advancing the interests of their several parties. And I suppose that's exactly what a lawyer's responsibility is. But in the opinion of this observer, the result is to make the job of the investigators more difficult. And a collateral result is that the reporters covering the proceeding tend to write about the charges of lawyers rather than the determination of fact.

Under the old regulations, only members of the panel could examine and cross-examine witnesses. Interested parties could submit questions to the panel members, but could not examine or cross-examine witnesses. Under the present regulations, any party may be represented by counsel who can take part directly in the proceedings.

WILLIS PLAYER
V.P., Public Relations
American Airlines

Good Questions on Limos

To the Editor:

I hope sincerely that your piece in the current issue of *AIRLIFT* entitled "Ouch! Those High Limo Rates" will become the first of a series of articles on the overall subject of ground transportation. Otherwise, you may unintentionally misrepresent many pretty decent citizens who have staked their careers and investments in a vastly misunderstood enterprise.

What portion of the air passenger traffic market depends on organized ground transportation? How much higher are ground transportation fares than taxi-metered fares? Do ground transportation fares include federal and local taxes? What sort of fixed and percentage rentals do ground transportation companies pay airport terminal operators?

What is the maximum utilization attainable in city to airport vehicles? Are there some other incredibly high operating costs involved here such as wages, maintenance and tolls on turnpikes, tunnels and bridges?

Do the routes, fares, services and safety standards of most ground transportation companies fall under the jurisdiction of public service commissions or the I.C.C.?

Your statement that the "only apparent answer is a 'charge as you please' approach" etc. would appear to be a rather hasty conclusion. Who are the real "offenders?" Is it good reporting to infer that a mid-winter ride in New York to the East Side Terminal "in a coach with a heating system operated for driver's comfort" is the custom rather than the exception?

Is the information contained in your tables regarding limo rates and airport-to-city distances accurate or is your source material obsolete in most instances and badly in need of revision?

You have touched on an untapped subject here with a great potential in reader appeal and I hope you will be able to do something with it.

ROBERT W. TUTTLE, President
East Side Airlines Terminal Corp.
New York, N.Y.

EDITOR'S NOTE:

We will. The rate survey was only the beginning for AIRLIFT.

How Far is Pittsburgh!

To the Editor:

Your article in the August issue of *AIRLIFT* entitled "Ouch! Those High Limo Rates," was read with interest and we should like to call your attention to a slight error.

The Greater Pittsburgh Airport is located 14.7 miles from the city, not 16 miles as indicated in the tables of your article. Accordingly, Pittsburgh should be in the 10 to 15 mile category which would mean that the cost per mile for transportation from airport to downtown would be $.091. With the cost per mile being $.091, Pittsburgh would have the third lowest fare for its airport to downtown transportation. We thought you might wish to have this correction for your records.

ROBERT P. STORSETH
Chamber of Commerce
Pittsburgh, Pa.

EDITOR'S NOTE:

A good point from Pittsburgh. The AIRLIFT data was extracted from tables by Northwest and Eastern Air Lines in the Official Airline Guide. But airlines are strangely inconsistent in measuring airport to downtown distances. At Pittsburgh, Capital shows 14.5 mi.; Eastern and Northwest use 16 mi.; Allegheny uses 17 mi. and American 17.5 mi. It seems they're all wrong! Seems ATA might make a contribution here.

More About Limo Rates

To the Editor:

Your story "Ouch! Those High Limo Rates" was both timely and well-written. It was particularly pleasing to me because of your kind words about Airport Transport.

It may be of further interest for you to know that 20 percent of our limousine trips are with a single passenger, and our average load factor is 2.7. Each time you ride a limousine and pay $1.20, approximately $.16 of that $1.20 goes to the airport in the form of franchise fees.

Furthermore, you may want to know that our particular service will discharge a passenger anywhere in the First Zone, whether it be the House Office Building or DuPont Circle. Hotel, home or office, we deliver the passenger direct to his door for $1.20. So the type of service we perform can hardly compare with the general run of limousines that will discharge a passenger at a general terminal downtown, necessitating his reloading his baggage into another local cab in order to get to his ultimate destination. This procedure eliminates an operation, saving inconvenience and money.

MOE LERNER, President
Airport Transport, Inc.
National Airport
Washington, D.C.

Mr. Sayen Draws Rebuke

To the Editor:

As an airline employe here in the Washington area and having experienced a vacation as a result of the action of the pilots during the last Christmas season, I wish to comment on an article which appeared in your magazine in July. This article was written by the union leader

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LETTERS

Sayen of the Air Line Pilots Association and was in your magazine *AIRLIFT*.

Mr. Sayen stated "on the whole, labor relations in the aviation industry are good." After having suffered with my family for the lack of work at the Christmas holidays due to the pilots' activities, I couldn't help but think that Mr. Sayen has a short memory.

Also, I happened to see the May issue of Mr. Sayen's magazine "The Air Line Pilot" and in a report to his membership in an article headed "State of the Association" Sayen pointed out that for the past two years his Union had used mediation 37 times, took strike votes on 23 airlines, had emergency board hearings 8 times, and had strikes on 4 airlines.

This is hardly a good labor picture and only hurts airline employes generally, whereas the rich pilots have union funds to support them during such strikes.

Since union leader Sayen tells two different stories, and appears to talk out of both sides of his mouth, I think that this is a good subject for your Letters to the Editor column.

An Airline Employee
Name Withheld Upon Request

When & Where

SEPTEMBER

Sept. 7-13—Society of British Aircraft Constructors, annual flying display and exhibition, Farnborough, Hants, England.
Sept. 9-10—ATA Cargo Forms and Procedures Committee, ATA Conference Room, Washington, D.C.
Sept. 14-19—International Agricultural Aviation Conference, College of Aeronautics, Cranfield, England.
Sept. 16-17—ATA Ground Equipment Committee meeting, Miami.
Sept. 21-22—Los Angeles, Chamber of Commerce conference on planning and designing urban helicopter facilities, IAS Building, Los Angeles.
Sept. 22—International Air Transport Assn., 1959 fall conference, Honolulu.
Sept. 23-24—Airwork Corp., engine and operations symposium, Millville, N.J.
Sept. 30-Oct. 2—Southeastern Airport Managers Assn., Durham, N.C.

OCTOBER

Oct. 5-7—Institute of Aeronautical Sciences, 7th Anglo-American aeronautical conference, technical sessions, Hotel Astor, New York City.
Oct. 5-10—Society of Automotive Engineers, national aeronautics meeting, aircraft manufacturing forum and aircraft engineering display, Ambassador Hotel, Los Angeles.
Oct. 6-8—National Business Aircraft Assn., 12th annual meeting, Hotel Leamington, Minneapolis.
Oct. 6-8—National Airports Conference, co-sponsored by American Assn. of Airport Executives and University of Oklahoma, Norman, Okla.
Oct. 7-10—Air Traffic Control Assn., annual meeting, Biltmore Hotel, Oklahoma City.
Oct. 12—International Air Transport Assn., 15th annual general meeting, Tokyo.
Oct. 12-14—National Assn. of State Aviation Officials, Mark Hopkins Hotel, San Francisco.
Oct. 12-14—National Defense Transportation Assn., 14th annual national convention and logistics forum, Seattle.
Oct. 19-24—American Society of Travel Agents, 29th annual World Travel Congress, Havana.
Oct. 20-22—Air Transport Assn., engineering and maintenance annual meeting, Hotel Monteleone, New Orleans.
Oct. 20-22—Air Line Dispatchers Assn., 17th convention, Dunes Hotel, Las Vegas, Nev.
Oct. 26-28—Institute of Radio Engineers East Coast Aeronautical & Navigation Electronics conference, Baltimore.
Oct. 26-29—Flight Safety Foundation, International air safety seminar, Nice, France.

NOVEMBER

Nov. 12-13—Assn. of Local Transport Airlines quarterly regional meeting, Indianapolis.
Nov. 17-19—Aviation Distributors and Manufacturers Assn., 34th meeting, Diplomat Hotel and Country Club, Hollywood, Fla.

Jet Training Rules Obsolete?

Jet training mishap experienced by American Airlines should bring a much-needed look at training rules by FAA. Early reports indicate AA crew was in process of a two-engine out landing maneuver, an FAA requirement, but one that borders on the ridiculous in this day and age of flight simulators. Several years ago CAB deleted requirement of takeoff engine failure demonstration following a similar accident.

One major airline is committed to leasing ground support equipment for jets in a $2 million deal.

PAA Interested in Utility Jets

Reports continue to crop up on Pan American's interest in utility jets to launch an executive aircraft leasing program. Negotiations are understood to be handled by president Juan Trippe personally in some instances, in others by v.p. Alvin P. Adams. At least Lockheed and McDonnell have been approached, with numbers of aircraft varying from 20 to 100.

Jets contributed substantially to big traffic growth in first half of 1959. Domestic jet load factor for the six months hit 92.6%. Indication that the planes are stimulating new business is that the number of passengers at cities to which American and TWA have added jets increased more percentagewise than did passengers on their complete systems. AA claims surveys made before and after introduction of service show that not many people change boarding points just to ride jets.

July Traffic Shows 15% Gain

Domestic trunks' traffic was up 15% in July over same month last year. Passenger-miles totaled 2.58 billion, available seat-miles reached 4 billion (up 6.6%). Load factor was 64.38%, or 4.68 points above last year. July passenger-miles were only 1.2% below the 2.61 billion June total, highest month of the year so far.

North Atlantic business boomed in the second quarter. Passengers on U.S.-Europe flights increased 12%, cargo tonnage jumped almost 50% over last year. Of the 332,103 passengers, 72% rode economy class. Pan American led in passengers (90,741), Seaboard & Western in cargo (1,712 tons).

Lower Price for Turbofan

A $4,750,000 base price has been quoted by Douglas for the turbofan DC-8. This is substantially less than the $5 million-plus for the intercontinental model with JT4As. The turbofan engines themselves cost less, and by the time the new models are due on the production line, the factory's learning curve will be at peak efficiency.

Long-time major stockholder Raymond Marshall has agreed to sell his stock in Alaska Airlines (p. 17), but he isn't out of the Alaska picture yet. He owns something over 50,000 shares in Pacific Northern Airlines, it is reported.

Push for Lower Fares at IATA

A hot battle may develop at IATA traffic conference in Honolulu this month. British Commonwealth airlines will push for lower international fares, including extension of economy service throughout the world. There were reports that if they aren't successful they'll leave IATA and form "Commonwealth Airlines," based on the Air Union idea. Included are BOAC, BEA, Qantas, Air-India International, Trans-Canada. As a matter of fact, few IATA members oppose expansion of economy service, would probably agree even without threats. Some small lines feel lower fares ought to wait until economies of jets are better known.

Some preliminary studies have been made by Douglas-El Segundo on a four-passenger, straight-wing Mach 0.8 airplane with a range of 1,000 miles. Douglas would like to propose the plane to the Navy if the latter could find money to begin replacing some of its twin Beech administrative craft.

Equipment Crystal Ball

Good bet department: Lockheed C-130 will be produced in Germany . . . Cessna will unveil a 4-place version of its Continental J69 powered T-37 next month as an executive jet . . . P&W J57 will surpass even Rolls-Royce Dart in airline turbine engine reliability . . . Convair 880 will be the first U.S. jet to meet or better its speed predictions . . . Rolls-Royce Conway will become one of the most popular engines to grace the airline scene in years.

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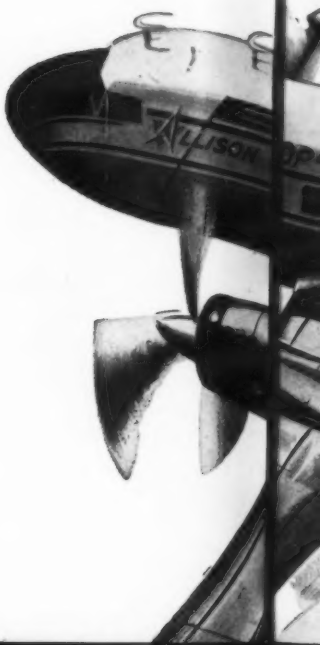

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It's the Allison Prop-Jet Super Convair—the perfect marriage of a time-proved airframe and a brilliant new Prop-Jet system backed by nearly one million hours of flight experience. The airplane converted to Allison 501 Prop-Jet engines and Aeroproducts Turbo-Propellers fully meets jet-age performance standards, yet is available at a fraction of the price of comparable new aircraft.

The airframe: A Convair 340/440, the same airframe which has proved itself in millions of miles of airline service on both main and feeder routes, plus thousands of hours with these same Allison Prop-Jet engines and Aeroproducts propellers.

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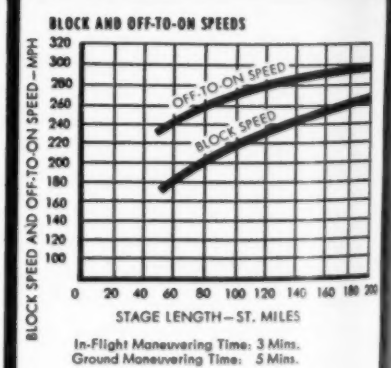

Mr. William O. Watson
Manager, Sales & Contracts
Dept. 4b Aircraft Engines Operations
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Indianapolis 6, Indiana

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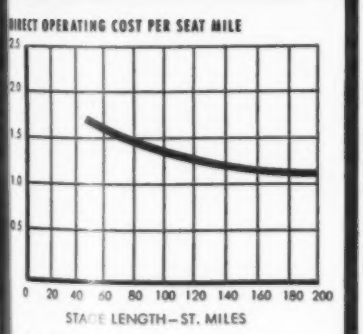
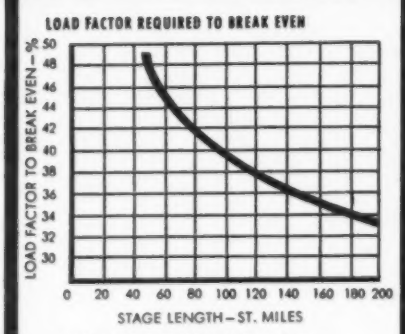
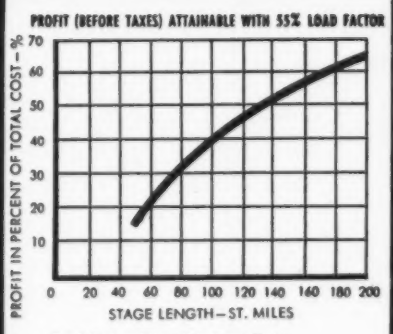


Based on 56 seats



Indirect Costs = 100% of Direct Costs
Revenue = 7.0¢ Pass. Mile
56 Seats
No Cargo Revenue



Total Cost = Direct & Indirect Costs
Indirect Cost = 100% of Direct Costs
Revenue = 7.0¢ Pass. Mile
56 Seats
No Cargo Revenue

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MacIntyre Named EAL President

In a sudden move, Malcolm A. MacIntyre, former USAF Under Secretary, was named president, chief executive officer and a director of Eastern Air Lines, effective Oct. 1. Realignment will enable board chairman E. V. Rickenbacker, who has been chief executive officer, to devote more time to long-range planning and policy. T. F. Armstrong, president since 1953, becomes executive v.p. concentrating on fiscal affairs.

Durfee Nominated for Judgeship

Long-expected changes in CAB membership will now get underway following President Eisenhower's nomination of CAB chairman James R. Durfee to the U.S. Court of Claims. Durfee's CAB resignation was expected upon his confirmation by the Senate. If this was not forthcoming before Congressional adjournment, a recess appointment will seat him on the court until Congress returns in January. In addition to a Durfee replacement, the administration will name a successor to Harmar Denny, whose term expires at yearend. Despite numerous rumors, appointees have not been selected.

PO Can Airlift All Classes of Mail

An important Senate committee has stated that the Post Office has authority under present law to transport all classes of mail at rates fixed by CAB. This can lead to expanded use of air by the PO without further legislation.

The Senate Post Office Committee made the statement in approving Sen. A. S. Mike Monroney's bill giving the Postmaster General limited authority to enter into mail contracts with airlines. The committee insisted on definite safeguards: (1) limit the contract to one year, (2) require that it be filed with CAB 30 days before effective date, (3) permit CAB to suspend it for 60 days if the rate is unreasonable, (4) prohibit the contract if CAB finds it unreasonable within that time. Airlines had strongly opposed unlimited PO contracts, stating that "chaotic" conditions would result.

Credit Card Battle Looms

In a move that could touch off an industry battle, Western Air Lines filed with CAB provisions for honoring Hilton Carte Blanche and Diners' Club credit cards for on-line transportation, starting Sept. 1. At presstime, the deals had not been formally signed. Earlier, all other domestic lines had voted in the Air Traffic Conference not to honor any credit card except the Universal Air Trave Plan. WAL was the lone holdout and blocked the move, which needed a unanimous vote. How long the other lines, particularly WAL's competitors, will continue to hold out remains to be seen.

WAL said it would honor the cards to "broaden our credit base." It will collect face value of tickets from Hilton and Diners and pay the clubs a fee for collecting from cardholders. CAB, in a case involving a plan by IATA members to honor only UATP, has already tentatively ruled that such restriction might be in restraint of trade. IATA claimed outside cards increased costs because of the collection fee.

Airlines Benefit in New REA Pact

Substantial improvement in air express revenue for the airlines is expected to result from a new five-year agreement signed by Railway Express Agency and the carriers. The pact, which CAB must approve, incorporates all major changes on which airlines had insisted. Formerly, a cost-plus feature guaranteed REA a profit and resulted in it getting about 55¢ out of every air express dollar. Now, certain specified costs will be deducted from income and the remainder split 50-50 between REA and airlines. Policy and management decisions will be made jointly, and tariffs will be filed jointly.

Giles Quits Riddle

Following a policy dispute with financial interests, George L. Giles resigned as president and director of Riddle Airlines, positions he had held for 18 months. Edward T. Thompson, senior v.p., will direct the company until a new president is elected. During the past 18 months, Giles had reduced operating losses, eliminated money-losing fringe activities, and arranged for acquisition of several Argosy freighters.

Marshall Sells Alaska Stock

After bitter suits and countersuits, Raymond W. Marshall, who for years controlled Alaska Airlines, sold all his stock in the company to president Charles F. Willis Jr. and about 20 associates in a $1,750,000 deal. About 250,000 shares were involved. All court actions in the Marshall-Willis battle for control were terminated. Marshall and Frank C. LaGrange resigned as directors.

Petty Resigns FEIA Presidency

Outspoken George Petty abruptly resigned as president of the 3,562-member Flight Engineers International Association. Principal reason: personality clashes with his union council. Petty, who had held the $15,500 a year post since late 1957, is returning to flight engineer duty with Pan American World Airways on the Bangkok route. Ron Brown, FEIA executive v.p., will act as president until next spring, when the union elects a new head.

BOAC Gets Tokyo Stop

Reversing its examiner, CAB awarded British Overseas Airways Corp. the highly-controversial stop at Tokyo in extending the airline's London-New York-San Francisco route to Hong Kong. President Eisenhower approved the decision. CAB member Louis J. Hector, although concurring, wrote a strong separate opinion questioning whether CAB has the power to rule on "public interest" on a route granted under a bilateral agreement.

Northwest Airlines fought the Tokyo grant, claiming the city was improperly inserted in the bilateral and that BOAC would divert substantial business from U.S. carriers. A CAB examiner said the award would not be in the public interest (Airlift, May). CAB, however, said the public interest in adherence to the bilateral outweighs an estimated 1960 BOAC diversion of $7.8 million from U.S. lines. The bilateral, it added, will sharply limit the amount of service BOAC can offer to Tokyo.

Said Hector: NWA built such a powerful case that "if there ever was a case where the Board should exercise its purported independent power to find a route granted in a bilateral is not in the public interest it is this one." Failure to do so makes the power non-existent, he stated.

Increased F-27 Weights Okayed

Increased takeoff and landing weights for the Fairchild F-27 were certificated by FAA. Takeoff weight was boosted 800 lbs. to 36,500 lbs., landing weight 2,000 lbs. to 36,000 lbs. Zero fuel weight remains the same. Production F-27s will be certificated for the increases, and modification kits will be available for planes in service.

Military Airlift Plan Proposed

Four airlines won CAB permission for talks with government agencies about a plan for carriage of more military traffic. The program, proposed by TWA, Pan American, Northwest and Seaboard & Western, is an extension of the plan submitted to Defense Dept. by S&W (Airlift, August). The carriers said the military would get reduced rates by means of "long-term formal contracts . . . These contracts would become effective only after having been reviewed and approved by CAB as proper and in the public interest . . ."

French Bilateral Renewed

The U.S.-French civil air agreement, which the French said a year ago they would terminate, was renewed. General principles remain unchanged, and the renewal was a victory for the U.S. Only changes were in routes. France received a polar route to either San Francisco or Los Angeles, a line from New Caledonia and Tahiti to Honolulu and then to San Francisco or Los Angeles, authority to serve Anchorage, and a Baltimore stop on the Atlantic service. U.S. gets the right to operate from U.S. to Tahiti and New Caledonia and then to Australasian points. Points were also added to other U.S. routes.

Boeing Offers Cargo Jet

A swing-tail turbofan civil cargo version of its 707, designated Model 735, can be set up on the production line with an order for less than 10 planes, and can be available in early 1961, Boeing Airplane Co. said. Price will probably be between $5.5 million and $6 million. Maximum gross weight was given as 316,000 lbs., maximum payload 100,000 lbs., cruising speed 550-600 mph. Engine would be the Pratt & Whitney JT3D turbofan. Boeing presented its proposal to CAB, which has been meeting with manufacturers on their plans for cargo planes.

LaGuardia Project Costs $56 Million

A $24 million boost in the LaGuardia Field improvement program was approved by the Port of New York Authority, bringing the total to $56 million. Passenger terminal will be lengthened and a third story added, making it five times the size of the present building. A new runway will be built, and 1,800 auto parking spaces added.

WAL Can't Retire Pilot at 60

An arbitration board ruled that Western Air Lines cannot require a pilot to retire at age 60 because this is not provided in its pilots' contract. WAL is one of several lines where company policy calls for compulsory retirement of pilots at 60 on grounds that a pilot of that age raises questions of safety.

It became an issue when one of WAL's senior captains, Fred Kelly Two (so-called because WAL once had two pilots named Fred Kelly) filed a grievance under the union contract, claiming he was in good health and capable of flying. Ruling in his favor, a neutral arbitrator said: "Medical testimony given by and quoted by the same expert is in almost hopeless conflict as to the exact age when a pilot becomes a hazard. The carrier here has shown no relationship between age of pilot and accident frequency . . ."

This is the second case upholding the right of pilots to fly after 60 despite company policy because no provision covering the matter is included in the union agreement. Three American Airlines pilots, E. A. Cuttrell, R. J. Rentz and J. H. Burns, were ordered returned to flight status by a neutral referee after they filed a grievance.

Briefs

Russia's Aeroflot has a new boss. Y. P. Loginov, a Soviet Air Force deputy chief, has succeeded Air Chief Marshal P. F. Zhigarev. The assignment is rotated on a predetermined tour-of-duty basis.

A $7 million order was placed by Slick Airways with Lockheed for three 1049H Super Constellations. Planes initially will be assigned to MATS contract flights, later used to reestablish domestic cargo service. Earlier, Slick ordered six Lockheed Super Hercules turboprop cargo planes (p. 25).

Two Bristol Britannia turboprops were ordered by Transcontinental S. A., Argentine airline, for use on its New York-Buenos Aires route.

A $6 million credit was extended by Export-Import Bank to Compagnie de Transports Aeriens (TAI), private French airline, toward purchase of two Douglas DC-8s. TAI will pay $8,150,000 cash prior to delivery. Of the $8 million financed portion, Douglas will carry 25%, Eximbank 75%.

Successful completion of financing for 10 Canadair CL-44D-4 turboprop freighters was announced by The Flying Tiger Line. Carrier sold privately $5 million convertible debentures. Balance of $43 million is covered by equipment trust certificates.

Air Line Pilots Assn. signed a 50-year lease with a syndicate building the new Midway House Motel on ALPA property near Chicago-Midway Airport. ALPA expects to net considerable annual income from the lease.

Two airlines—United and Delta—will start Douglas DC-8 service on the same day (Sept. 18) from the same airport (New York International). UAL will fly New York-San Francisco, Delta New York-Atlanta.

New addition to Beech Aircraft Corp.'s 1960 line of executive models is a four-place single-engine plane in the $20,000 price category. Configuration of Model 33 will be similar to the Bonanza but with conventional tail and a swept-back vertical stabilizer.

Bank credits of $3,250,000 have been obtained by Hawaiian Airlines. Company will phase out all DC-3s, convert all Convair 340s to 440s at cost of $30,000 each. It will also modernize ground equipment and relocate its present base.

Seaboard & Western Airlines moved its executive and administrative offices to the new Seaboard & Western Building at New York International Airport. Sales department remains at 80 Broad St., New York.

Rolls-Royce has upped the guaranteed minimum takeoff thrust rating of the Conway by-pass engine from 16,500 lbs. to 17,500 lbs. Conways have been ordered for Boeing 707-420s of Air-India International, BOAC, Lufthansa and Varig, and DC-8s of Trans-Canada and Alitalia.

JT12 OPENS
A NEW
CHAPTER IN THE
STORY OF FLIGHT
Smallest and lightest of Pratt & Whitney Aircraft's family of jet engines, the JT12 is considered the leader in its class. Its modern design, simplicity and ruggedness have led to its selection for a number of outstanding new utility transports, as well as trainers and drones. Some of these are shown below.
Lockheed JetStar
(4 JT12s)
McDonnell M119
(4 JT12s)
North American
SabreLiner (2 JT12s)
Canadair CL41 Trainer
(ONE JT12)

POWER IS THE KEY!

Dependable power is essential to flight—whether it be in the Earth's own atmosphere or in outer space.

Pratt & Whitney Aircraft is dedicated to providing that power, in whatever form may be required. It may be a new jet engine for transport aircraft. It may be a highly efficient missile power plant. It may be a nuclear rocket engine for an advanced space vehicle—or a solar power system for a manned orbiting space station. Whatever it is, it will carry out our tradition of providing dependable power for flight.

Flight Propulsion by **PRATT & WHITNEY AIRCRAFT**

East Hartford, Connecticut

A division of United Aircraft Corporation

RHUCOR *Strato-Sprite* WATER FILTERS

SAVE YOU 1/2

WEIGHT
Total Weight
only 1½ lbs.

SIZE
Compact, 9½" x 3½"

MAINTENANCE TIME
Filter Cartridge
Changes in seconds!

Repacement Filter Cartridge (at top) changes with a simple half turn. Adaptor body (below) is easy to install.

This valuable combination of weight, space and maintenance savings means more payload, more profit on every air mile for you. That's why more and more airlines are removing existing filters and specifying RHUCOR Strato-Sprite water filters on all equipment!

Weighing only 1½ lb. per unit, savings amount to 7½ lbs. on 5-system installations. Adaptor body is constructed of stainless steel (or nylon for further weight savings). Unit measures only a compact 9½ x 3½ inches! Replacement filter cartridge changes with a simple half-turn in a matter of seconds. All surfaces contacting water are corrosion proof.

Removes unpleasant chlorine tastes and odors and objectionable organic tastes from up to 2000 gallons of water, depending on flow rate... 1500 gallons of strongly chlorinated water at average flow rate, enough for about 30,000 cups. Passengers enjoy drinking water as fresh as if from a mountain stream ... perfect coffee and beverages.

Send for engineering report giving complete specifications and capacities.

JAL puts passengers in the Japanese mood the moment they step into the Nipponese decor of the DC-7C Super Courier cabin. Service by a doll-like hostess starts with exchanging shoes and coat for "sleepy sox" and "happi coat," followed by an Oshi-bori, a steaming hot towel to refresh face and hands. Among other comforts, JAL passengers enjoy mountain-fresh water provided by Rhucor Strato-Sprite Water Filters.

Used by Douglas Aircraft Company and on various types of aircraft flown by such leading airlines as Pan Am, SAS, Swissair, KLM and JAL. In operation aboard many sea-going cruisers. Also widely used for coffee brewing devices, vending machines, restaurants, bars and soda fountains.

Ronson Hydraulic Units Corp.

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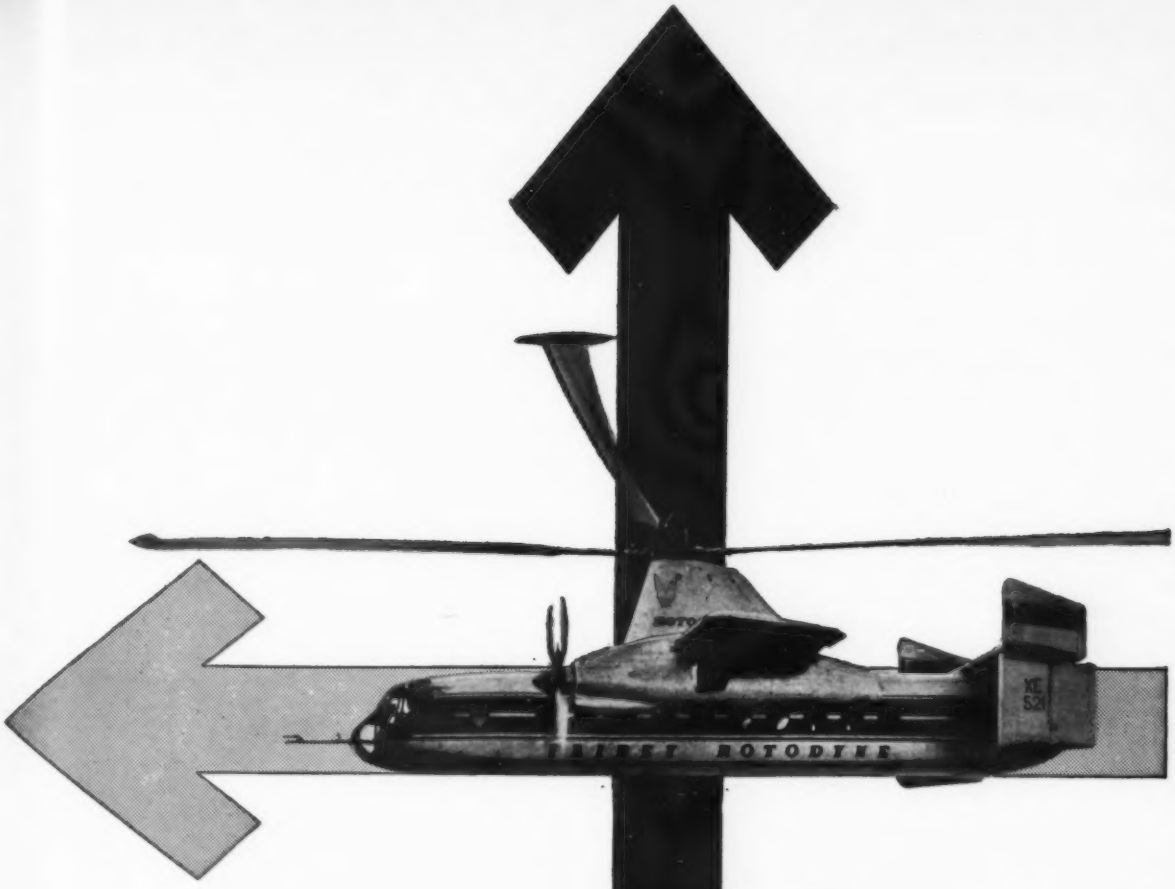

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General Electric
CJ-805
is a pilot's engine...

reliable, responsive, and mature

Look at the General Electric CJ-805 from the pilot's viewpoint.

CJ-805 Reliability—Throughout thousands of hours of "squawk-free" operation, CJ-805s are showing their ability to meet pilot requirements—in timely starting, fast full power for take-off, prompt response to throttle changes during landing approach and reverse thrust operation.

CJ-805 Response—In an emergency aircraft "wave off" during landing, CJ-805s are less than three seconds away from full power. From ground idle to take-off throttle settings the engine produces full power in less than 6 seconds. Throttle bursts, chops, in-flight shutdowns and restarts have been consistently accomplished without difficulty in the Convair 880s, G.E.'s leased B-66 and XF4D to extreme altitudes.

CJ-805 Maturity—CJ-805 production engines, identical to those flying on CV-880s, have already demonstrated ruggedness and maturity in thousands of flight and factory test hours. Two engines have completed 2000-hour ground tests—one of these is now flying in G.E.'s leased B-66, approaching 3000 hours total time. Pilots flying CJ-805 powered aircraft will have an engine whose design and operating maturity have been fully proven.

From the pilot's viewpoint, or any other, CJ-805 power makes good sense. For more information, contact your G-E Aviation and Defense Industries sales representative or *General Electric Company, Cincinnati 15, Ohio.* 237-28

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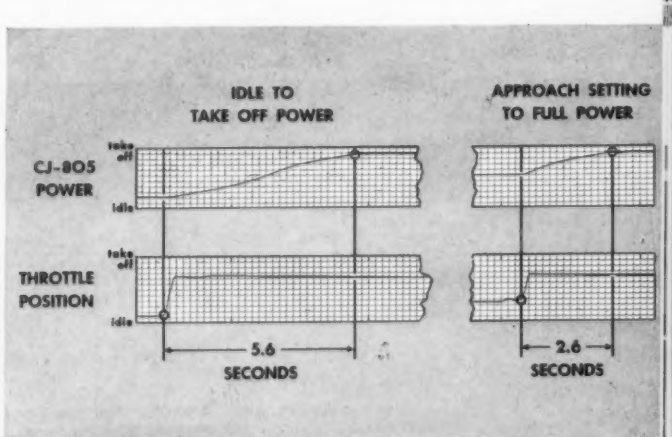
ONVAIR FLIGHT TEST PILOTS flying 880 evaluations e Don Germeraad (left) and Phil Prophett. Obrved Germeraad, ". . . The G-E CJ-805 proved to e that it has power when you need it." From their oint of view, the CJ-805 is a pilot's engine.



FAST RESPONSE TO THROTTLE takes CJ-805 fan engine from idle to take-off power in 5.6 seconds and from approach settings (20% power) to full power in 2.6 seconds. Brush tracings of an actual CJ-805 run document immediate, dependable response.

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Delta DC-8 Royal Jet Service is for Everybody

Deluxe First Class and Thrifty Supercoach

Passengers on Delta's initial DC-8 Royal Jet Service flights between Atlanta and New York will be quick to recognize that a new standard of luxury and comfort has been established in this swift moving Jet Age.

World's newest, largest true jetliner, the DC-8 is years ahead in design and decor. Quiet, vibration-free cabins of new beauty and spaciousness feature the accommodations for both first class and supercoach passengers. Cruising at nearly 600 mph, these luxurious jetliners provide a host of new conveniences and substantially more individual room for all passengers. Inaugural service over routes shown on the map will be effective: ▲ Atlanta-New York, now operating ▲ Chicago-Miami, Atlanta-Miami, Oct. 15 ▲ Remainder of pattern by late November

Initial Delta DC-8 Royal Jet Service Routes

Reservations now being accepted on all routes.

DELTA AIR LINES

Circle No. 111 on Reader Service Card.

Jet Take-Over on Trunks Complete

- **Turbine transport deliveries near 200 mark**
- **Turboprops still outnumber jets 2 to 1**
- **Rash of cargo orders ends buying lull**

THE U.S. TURBINE TRANSPORT builders are fast approaching the 200 mark in airline deliveries as the ranks of carriers with either jets or turboprops (sometimes both) have bulged to take in every domestic trunk airline.

From this point on, jet age becomes a matter of degree. When United and Delta introduce DC-8s later this month, the last of the non-turbine operators will be making their bid for the high jet load factors that have persisted until now.

In brief, the honeymoon is over on the domestic scene for airlines with the delivery advantages over the past nine months. Only in the international field does the minority still operate turbines, but this roster too will fill out rapidly in the next 12 months.

Of the U.S. built jets, only the 880 is still to appear, but all of its U.S. domestic trunk buyers already have turbine experience under their belts.

As of August 1, Lockheed had delivered 71 airline Electras, Fairchild, 41 F-27s, to bring the turboprop total to 112. Boeing had turned over 49 airline 707s and Douglas three DC-8s for a total of 52 jets.

The U.S. turbine deliveries take in 11 trunks (Capital and Northeast have Viscounts); one international carrier (Pan Am); eight foreign airlines; two Alaskan and one territorial airline.

Only in the local field, where five out of 13 carriers have F-27s and a sixth (Allegheny) is testing the Eland-powered 540, is the majority without turbines.

And as the delivery pace accelerates on passenger-carrying turbines, the lull in new plane buying has ended with a rash of cargo plane orders.

The latest, a 12-plane order by Pan American for the Lockheed Super Hercules, is valued at $60 million and brings the Lockheed Georgia Division's commercial backlog to 18 planes and $82 million. Earlier Slick Airways ordered six. Including options (17) its backlog nears $140 million.

—Who Has What in Turbines—

American	707s & Electras
Braniff	Electras . . . 707s due in October
Capital	Viscounts . . . ordering 880s & Electras
Continental	Viscounts and 707s
Delta	DC-8s this month, 880s in 6 mos.
Eastern	Electras . . . DC-8s in 3 mos.
National	Electras, 707s on lease; DC-8s coming
Northeast	Viscounts; TWA 707s on lease (Sept.)
Northwest	Electras . . . DC-8s in 4-6 mos.
TWA	707s . . . 880 due in 2 mos.
United	DC-8s this month; 707-120s next year
Western	Electras . . . no jets ordered yet.

But both of these orders set somewhat of a record in contingencies attached to their fulfillment. They both are hitched to military support of the Allison T61 engine, a prospect dimmed somewhat by USAF's failure to get Budget approval of $30 million for new cargo aircraft development in fiscal '60.

Two U.S. all-cargo airlines (Flying Tigers and Seaboard & Western) have placed orders for 15 and options for 10 Canadair CL-44 cargo turboprops, bringing the Canadian firm's potential order level to 25 planes and $137.5 million.

Fattened, too, are the ranks of carriers converting piston planes for cargo. American made the first move with a $4,250,000 contract for Douglas to modify 10 DC-7s. United followed suit with six conversions costing $3 million.

Pan American, as a gap filler for its Super Hercules waiting period, has signed up with Lockheed Aircraft Service, Ontario, Calif. to convert 10 DC-7s at a cost of $280,000, each. Eastern is showing signs of its first major cargo bid, is converting two 1049Cs and plans others.

Capital still deliberating

The biggest potential new passenger turbine order rests at Capital Airlines and could shake loose in about two months, according to Capital president David H. Baker.

It involves initially six Convairs ($27 million with spares) and six Electras ($18 million) for a $45 million package. Only delay now is resolving the finances that would release the carrier from the dictums of British note-holders on the $38 million outstanding on Viscounts.

The problem is one of agreement as to what level Capital's obligation must be reduced before British control over the carriers management decisions on new equipment can be erased. This reportedly is being worked out with the British and presumably the four big manufacturers awaiting an order (Lockheed, Convair, Allison and GE) could play a major role in rounding up the U.S. dollars to ease Capital's overseas burden.

In other developments, Bonanza Air Lines became the first local carrier to reorder the Fairchild F-27, buying four for delivery in 1960. This brings its commitments to 10, making it the largest buyer of F-27s.

Eastern Air Lines, biggest customer for Lockheed's Electra, was within five of its 40-plane Electra fleet on August 1. American, with orders for 50 Boeings (25 707-123s and 25 707-023s) had received 19.

The No. 1 buyer of Douglas jets, United, received the first two of 40 planes. For a rundown on how the manufacturers stand on deliveries as of August 1, see page 26.

TURBINE AIRCRAFT DELIVERIES

Boeing 707 & 720

Airline	Ordered	Delivered or Due
Air India	3	Jan. '60
Air France	17	Nov. '59
American	50	19*
BOAC	15	Dec. '59
Braniff	5	Oct. '59
Continental	4	4
Cubana	2	Mar. '60
Irish	3	Nov. '60
Lufthansa	4	Jan. '60
Pan American	23	7
Qantas	7	4
Sabena	5	Dec. '59
South African	3	July '60
TWA	33	15
United	11	Apr. '60
Varig	2	June '60
Other (USAF)	3	3
Total	190	52

*AA is operating 18. One 707 lost in training accident on August 15.

Convair 880 (including 600)

Airline	Ordered	1st Delivery Due
American (600)	25	Aug. '61
Delta	10	Jan. '60
REAL	4	Jan. '61
Swissair-SAS	5	Oct. '60
TWA	30	Nov. '59
Transcontinental	4	Open
Total	78	

Douglas DC-8

Airline	Ordered	Delivered or Due
Alitalia	4	2ndQ, '60
Delta	6	1
Eastern	16	1stQ, '60
Japan	4	3rdQ, '60
KLM	12	1stQ, '60
National	3	1stQ, '60
Northwest	5	1stQ, '60
Olympic	2	3rdQ, '60
Panagra	4	1stQ, '60
*Pan American	21	4thQ, '59
Philippine	2	4thQ, '60
Swissair	3	2ndQ, '60
TAI	2	2ndQ, '60
TCA	6	1stQ, '60
SAS	7	1stQ, '60
United	40	2
Total	137	3

*Includes Panair do Brazil (4)

Lockheed Electra

Airline	Ordered	Delivered or Due
American	35	19
Ansett/ANA	2	2
Braniff	9	3
Cathay Pacific	2	2
Eastern	40	35
Garuda Indonesian	3	1stQ, '60
KLM	12	3rdQ, '59
National	23	3
Northwest	10	2
Pacific Southwest	4	4thQ, '59
Qantas	4	4thQ, '59
TEAL	3	4thQ, '59
Trans-Australia	2	2
Western	9	3
Unannounced	19	0
Other (Allison)	1	1
Total	178	72

Fairchild F-27

Airline	Ordered	Delivered
Aerovias Ecuatorianas	1	1
Aerovias Venezolanas	5	5
Aloha	3	3
Bonanza	10	3
No. Consolidated	3	3
Ozark	3	2
Pacific	6	6
Piedmont	8	8
Quebecair	3	3
Trans Mar de Cortes	1	1
West Coast	6	6
Wien Alaska	2	1
*Corporations (21)	21	13
Total	72	54

*Corporation purchasers to date are: Continental Can Co., General Tire & Rubber Co., Butler Aviation (Washington), Bank of Mexico, Westinghouse Electric Corp., Ideal Cement Co., Champion Spark Plug Co., Kimberly-Clark Corp., R. J. Reynolds Tobacco Co., Noland Co., Reynolds Metals Co., and Johns-Manville Corp.

First half result:

Breakthrough in Revenues and Earnings

By SELIG ALTSCHUL

AIRLINE revenues and earnings have developed remarkable resiliency during the first half of this year. It is a trend that is continuing thus far during the summer months.

Results for the initial six months of 1959, while good reading in themselves, however, stand out even better in comparison with the poor first half of 1958.

More than a year ago, the industry was still in an alarming tailspin. The slump in general business proved a heavy drag on traffic. Earnings, sapped by lagging revenues, were drained even further by the intensified route competition ordered by the CAB. In fact, early in 1958, the airlines appeared more likely to be headed for disaster than prepared to usher in the bright new jet age.

During the summer of 1958, however, the fortunes of the industry took a sharp turn for the better. For one thing the recovery in the economy at large fueled an upsurge in air transport travel. Incidentally, this phenomenon illustrates the current sensitivity of airline volume to general business conditions—a circumstance which assumes increasing importance for the future.

Then, too, upward adjustments in the fare structure, in February and October 1958, were beneficial to the cause of airline revenues and earnings. Further, the introduction of jet transport service and broadening of turboprop schedule patterns have proved to be effective traffic stimulants, so enthusiastic has been the public response to this new equipment.

The 12 domestic trunk lines recorded new peaks in revenue passenger miles flown of over 13.4 billion for the first half of 1959, up 11.2%, over the same period in 1958. Higher load factors have been a happy concomitant in this showing.

As a sequence, published earnings reported thus far this year for most of the airlines, make cheerful reading. Results for the U.S. trunks and Pan American World Airways for the first six months are noted in the accompanying exclusive summary. In addition to gross operating revenues and net earnings for the first half of 1959, the new profit margin realized or percentage of gross carried through to net is also shown and is most meaningful. (In a broad sense, this is an indication of effective cost control.) Also,

net income per common share for the comparative periods of 1959 and 1958 are noted, highlighting the leverage exerted by improving traffic and revenues on earnings. Capital gains and the extent they contributed to net earnings in 1959 are also shown separately.

Western Air Lines demonstrated the best profit margin in the group, carrying 6.78% of gross through to net for the first half of 1959. This has led to the best first six months in the company's history with earnings of $1,895,000 or $1.87 per share, virtually all from operations. Comparison with the first half of 1958 is of little value due to the adversely affected operations caused by a pilots' strike during that period.

American, while reporting an improvement in over-all net profits, actually did not do very well in its operations. Capital gains accounted for 63% of the total net income for the first six months. Confining results solely to operations and excluding capital gains, American shows a net profit margin of but 1.97% and earnings per common share of 38¢ for the first six months of 1959. (Excluding capital gains, net per common share was 67¢ during the first half of 1958.) The pilots' strike during the first quarter of this year was burdensome and effective cost control, relative to other carriers, was not yet evident during the second quarter.

While Braniff reported a smart improvement in earnings and a profit margin of 4.92%, the results are not comparable with those of other carriers. Braniff is the only major U.S. airline depreciating its DC-7s over a 10-year period. Most carriers do not exceed a seven-year base for their DC-7s and Super Gs, with even shorter periods sometimes in evidence. Longer depreciation bases, of course, have a tendency to inflate current earnings and reduce cash flows.

United combats jets

What may prove to be one of the most outstanding performances in competitive airline history belongs to United Air Lines this year. Despite being beset by transcontinental jet competition from both American and TWA, United showed a healthy gain in gross revenue, and through effective cost controls (4.23% profit margin), made it count in the net income column. Instead of slugging it out schedule-to-schedule in the competitive long-haul jet patterns, United, by carefully rescheduling flights and advance planning, was able to generate additional traffic in other areas of its system while at the same time avoiding being drained by competitive jet services. And with the DC-8 jet scheduled to fly its transcontinental routes starting in September, United will be fully competitive in all respects without any adverse earnings effect for the almost nine months it was at a disadvantage with other carriers having the coast-to-coast jet service to themselves. In fact, United will step into the jet age with an excellent earnings record for the year.

Northwest Airlines also has yet to start its jet service but has shown good results, reporting net earnings of $1.15 per common share for the first six months of 1959 as compared with 38¢ for the like 1959 period. Closer analysis, however, reveals that the company has developed net income, after taxes, of but $261,000 on gross revenues of $40 million in its domestic services, or a profit margin of but .6%. It is the operations to the Orient which have been so profitable to Northwest. For example, on gross revenues of $18.5 million for its international operations, Northwest was able to convert a profit margin of 8.76% to a net income of $1,621,000 for the first half of 1959. The company's shorter route to the Orient has given it a distinct competitive advantage in obtaining traffic moving to and from that area and the U.S.

Gains on the sale of property figured prominently in reducing Capital Airline's deficit in both periods of 1959 and 1958. Were it not for such gains, Capital would have shown a net loss of almost $1.2 million for the first half of 1959.

TWA has demonstrated the sharpest recovery of the entire group thus far in 1959. While the company lost $2.4 million in its international operations for the first half, it chalked up a resounding net profit of $3,974,000 during the same period in its domestic service. The company's near-capacity operations with the jets has been largely responsible for the remarkable snapback. It must be recalled that, during the first half of 1958, TWA lost more than $11.9 million. While the company, due to past losses, does not pay current federal income taxes, it does defer taxes for future periods in view of accelerated amortization charges on some of its equipment. In the first six months of 1959, $2.4 million was reserved for this purpose. Accordingly, on a comparable basis, the current first half showed profits of $3,972,000 as contrasted to the loss of $11,923,000 for the first half of last year, or a spread of $15,898,000 in profitability for a one year period.

Pan Am erases deficit

Pan American experienced a profitable second quarter which enabled it to erase the deficit operations of the first three months. For the first half of 1959, however, Pan American carried but .40% of gross through to net. While the jet has been enthusiastically received, earnings have been slow to develop fully in the Atlantic service. At least this was the experience during the first quarter. Other divisions, of course, have not yet had the benefit of jet equipment. Faith in the company's outlook is implicit in the maintenance of two 20¢ dividends during the first half as compared with earnings of only 10¢ per share during this period.

In viewing the trend of airline revenues and earnings to date, it should be remembered that comparisons will soon be made with months in 1958 and 1959 where improving operations began to be felt. Further, disturbances in the nation's economy, such as the present steel strike, are not without their effect on airline travel and revenues. As always, events in the air transport industry are fast-moving and warrant close observation as to their impact on earnings.

MAJOR U.S. AIRLINES

Comparative Results First Six Months—1959

	Gross Operating Revenues (000)	Net Income or (Loss) (000)		% Carried Through	Earnings (or Loss) Per Common Share First Six Months 1959		1958
American	$166,906	$8,827	(1)	5.29%	$1.07	(1)	$0.88
Braniff	36,732	1,806	(2)	4.92	0.61	(2)	0.30
Capital	54,984	(625)	(3)	(1.14)	(0.69)	(3)	(0.80)
(A) Continental	13,473	258	(4)	1.91	0.20	(4)	(0.50)
Delta	54,537	1,566		2.87	1.40		0.69
Eastern	147,162	3,646		2.48	1.17		1.69
(A) National	24,738	1,725		0.70	1.53		0.73
(A) Northeast	13,614	(1,266)		(9.30)	(0.71)		(1.52)
Northwest	59,378	1,881		3.17	1.15		0.38
Pan American	162,217	652		.40	0.10		(0.28)
TWA	159,306	1,564		.98	0.23		(1.59)
United	166,430	7,039	(5)	4.23	1.90	(5)	1.19
Western	27,932	1,895	(6)	6.78	1.87	(6)	(0.48)

NOTES:

(A)—Five Months ended May 31.

Includes gains on sale of property (net) as follows:

	Amount	Per Share			Amount	Per Share
(1) American	$5,535	$0.69	(4)	Continental	$711	$0.53
(2) Braniff	271	0.09	(5)	United	476	0.12
(3) Capital	569	0.63	(6)	Western	65	0.07

Exclusive

Jet Costs Dip, But Only Slightly

Direct operating costs for the Boeing 707, Lockheed Electra and Fairchild F-27 showed a slight decline during the second quarter, according to an exclusive analysis by *AIRLIFT*. Higher utilization produced lower seat-mile costs for such items as insurance, depreciation, engine rental and amortization of training.

Compared to first quarter results (*AIRLIFT*, July, p. 38) American's cost per available seat-mile on 707s dropped from 2.74¢ to 1.82¢, Pan American's from 2.35¢ to 2.16¢. First operations by Continental and TWA showed costs of 1.21¢ and 2.04¢ respectively.

Electra costs also dipped. American's first-quarter cost of 3.43¢ per available seat-mile dropped to 2.49¢; Eastern's 2.20¢ dipped to 2.12¢. First costs reported by Braniff and National were 1.61¢ and 1.34¢ respectively, but flying in each case was below 1,000 hrs.

In utilization, Pan American topped the field with 8 hrs. 36 min. on its 707s. NAL reported 7 hrs. 46 min.; Continental 7:07; TWA 6:09 and AA 6:01.

On the Electra, NAL was tops at 7:07; BNF at 7:00; EAL 6:29 and AA 5:01.

In local operations, West Coast dropped its available seat-mile costs on the Fairchild F-27 from 3.91¢ in the first quarter to 3.19¢ and Piedmont fell 3.55¢ to 3.23¢.

Highest time registered by a carrier for the three months was Eastern's 17,369 hrs. flown with Electras. American's 6,932 hrs. on 707s ranked second.

Jet fuel consumption continued to show a wide variation among 707 carriers ranging from a low of 2,050 gals./hr. for Continental to 2,510 for NAL. TWA reported 2,085; Pan American 2,095 and American 2,225. Pan American's reflects a drop from 2,182 gals./hr. averaged in the first quarter and AA's a drop from 2,330 gals.

Aircraft speeds remained relatively constant. PAA averaged 474 mph (takeoff to landing) against 477 during the first three months. American dropped from 477 to 469 mph. First reports by Continental and TWA showed 477 and 472 mph respectively.

For the Electra, AA registered 334 and EAL 330 mph, compared to respective averages of 332 and 333 mph for the first quarter. For the F-27, Piedmont averaged 196 mph and West Coast 187 mph.

Turbine Aircraft Costs and Operating Statistics
Second Quarter 1959

(All costs in cents per revenue mile) — Data from CAB Records

	Boeing 707					Lockheed Electra				F-27*	
	AAL	CAL	NAL	PAA	TWA	AAL	BNF	EAL	NAL	PAI	WCA
Crew Salaries & Expenses	21.32	16.73	20.61	25.78	30.69	25.49	21.65	29.10	24.14	19.98	24.72
Fuel, Oil & Taxes	52.82	50.95	60.49	60.48	43.02	25.68	20.51	25.30	21.26	18.16	23.68
Insurance	12.50	19.28		23.92	17.03	5.48	5.11	2.70	9.13	6.67	8.17
Other	.01	....	31.00	.98	.46	(.24)	1.02	(.06)	....	.99	.25
Aircraft or Engine Rentals	....	....	172.80	....	72.05	26.70	....	....	....		
Total Flying Operations	86.65	86.96	284.90	111.16	163.25	83.11	48.29	57.04	54.53	45.80	56.82
Labor	9.27	6.99		13.98	5.27	6.79	6.24	10.08	4.28	9.43	11.62
Materials	13.75	6.95	Included	22.77	10.18	6.21	2.58	18.75	5.24	7.23	3.73
Reserves	6.28	26.28	In	12.84	38.70	21.22	20.74	2.43	2.08	15.63	18.60
Total Direct Maintenance	29.30	40.22	PAA	49.59	54.15	34.22	29.56	31.26	11.60	32.29	33.95
Maintenance Indirect	21.18	7.63	Lease	31.12	8.09	15.65	18.30	11.50	6.44	10.43	9.25
Total Maintenance	50.48	47.85	Cost	80.71	62.24	49.87	47.86	42.76	18.04	42.72	43.20
Depreciation—Aircraft	35.05	None		25.08	Included in Hughes Lease	32.48	16.39	26.00	19.02	12.18	13.08
—Engines	17.54	Reported		10.02	5.28	....	3.18	9.04	5.78	3.64	3.93
—Parts & Other	5.17			12.78	....	4.43	4.62	11.70	4.13	3.86	3.88
Total Depreciation	57.76			47.88	5.28	36.91	24.19	46.74	28.93	19.68	20.89
TOTAL AIRCRAFT OPERATING EXPENSES	194.89	134.81	284.90	239.75	230.77	169.89	120.34	146.54	101.50	108.20	120.91
Hours Flown—Revenue	5,955	313	381	4,257	3,710	5,805	259	16,046	747	4,090	2,740
—Training	909	366	....	553	671	489	....	971	153	38	23
—Other	68	95	....	34	53	94	270	352	73	81	104
Total Hours	6,932	774	381	4,844	4,434	6,388	529	17,369	973	4,209	2,867
Revenue Utilization	6:01	7:07	7:46	8:36	6:09	5:01	7:00	6:29	7:07	5:36	5:02
Revenue Miles Sched. Services	2,798,191	149,311	171,668	2,019,533	1,750,351	1,943,163	88,053	5,292,636	256,647	801,878	514,786
Available Seat Miles (000)	300,611	16,644	19,216	224,195	197,681	132,463	6,604	366,514	19,505	26,817	19,600
Revenue Passenger Miles (000)	278,065	13,762	14,886	205,046	188,442	107,804	4,155	200,007	13,131	13,267	9,675
Passenger Load Factor %	92.5%	82.7%	77.5%	91.3%	95.3%	81.4%	62.8%	54.6%	67.2%	49.3%	49.3%
Average Seats Per Mile	107.5	111.4	112.0	111.0	112.9	68.2	75.0	69.2	76.1	33.5	38.2
Average Passengers Per Mile	99.5	92.0	86.8	101.3	107.5	55.5	47.2	37.8	50.4	16.5	18.8
Direct Cost Per Available Seat-Mile	1.82	1.21	2.54	2.16	2.04	2.49	1.61	2.12	1.34	3.23	3.19
Direct Cost Per Revenue Passenger Mile	1.97	1.35	3.28	2.37	2.14	3.06	2.56	3.89	1.99	6.55	6.48
Fuel Consumed—Gals/Hour	2,225	2,050	2,510	2,095	2,085	758	533	737	620	264	263
Average Speed—Airborne	469	477	451	474	472	334	340	330	343	196	187
—Block-to-Block	441	468	403	447	442	297	307	296	315	162	152
Average Flight Length (Mi.)	1,996	1,736	1,080	1,922	2,120	623	587	603	1,068	90	80
Average No. of Aircraft	10.9	.5	.6	5.4	6.6	12.7	.4	27.2	1.2	8.0	6.0

* F-27 Data for Bonanza and Pacific Airlines Not Available

Fabulous Idlewild

Aviation's Airport City

A 14-page Special Report

By ERIC BRAMLEY

NEW YORK INTERNATIONAL AIRPORT is a vast city. Aviation has seen nothing like it. It is World Airport Number One.

It is so big that huge structures on it look small—an airline hangar into which almost three football fields could be fitted . . . an airline terminal with a main lobby bigger than Madison Square Garden's arena or the concourses of Grand Central or Pennsylvania stations.

It covers 4,900 acres, has seven miles of runways (shortly increasing to 8½), 20 miles of taxiways. Terminal City alone has 10 miles of roads, parking for 6,000 cars. Over 22,000 people, with annual payroll of $109 million, are employed at the field.

Passengers last year averaged 16,175 a day; by 1965, the total will be 12 million a year. When individual airline terminals are completed, there will be positions to park 140 aircraft. To be opened this fall will be the world's most completely-equipped instrument landing runway.

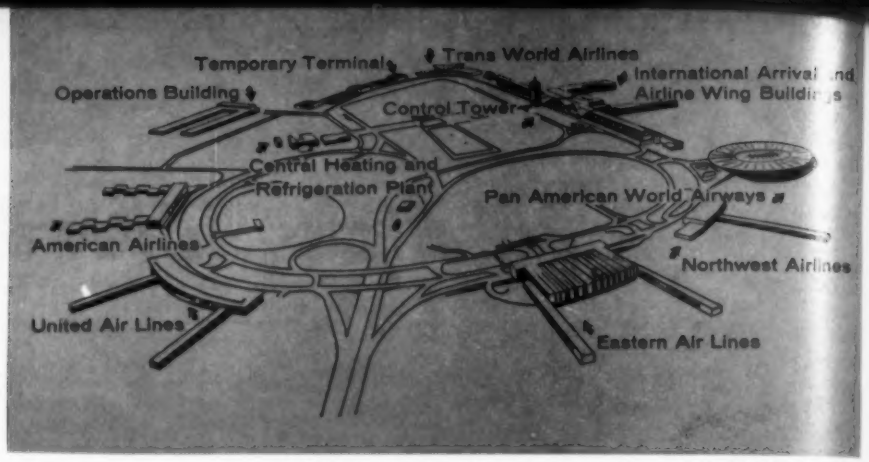
Over one-quarter of a billion dollars has already been spent—and this does not include decorations and furnishings that carriers have put in their offices and terminals.

This aerial gateway to the U.S. has doctors, dentists, lawyers, banks, restaurants, shops, police—almost everything a city has.

Construction at the airport began in April 1942 when the city of New York contracted for the placing of hydraulic fill over the marshy tidelands on the site of Idlewild golf course, in Queens County on Jamaica Bay, 15 miles from Manhattan. In June 1947, the Port of New York Authority took over under a lease with the city.

By the time the first scheduled flight landed—a Seaboard & Western freighter on July 9, 1948—structures consisted of a small temporary terminal and two hangars. In the last 11 years, a construction miracle has taken place.

Vincent A. Carson, formerly at Newark Airport and later head of LaGuardia, is the manager of this huge field.



Terminal City:

655 Acres—150 Million Dollars!

Terminal City, the passenger area of the airport, covers 655 acres—100 acres larger than all of LaGuardia Airport. It is not yet completed—total cost eventually will be $150 million. This area contains the International Arrival Building, serving all arriving overseas air passengers requiring health, immigration and customs inspection, and the adjacent Airline Wing Buildings, serving departing passengers on 21 foreign flag lines.

Also in Terminal City are the 11-story $1 million control tower, the 220-acre International Park with its Fountain of Liberty and reflecting pools, six U.S. airline terminals (two near completion, one not yet started), central heating and refrigeration plant, a three-acre chapel area (Catholic chapel completed, ground broken for Jewish synagogue, Protestant chapel planned), five parking lots for 6,000 cars, and the temporary terminal building. The latter is to be replaced by a "union terminal," accommodating all airlines that do not have their own terminals.

Terminal City was conceived by the Port Authority's aviation planning division, under Thomas M. Sullivan, now deputy director of aviation. Plans were developed by the staff in consultation with Wallace K. Harrison, architect of Rockefeller Center, United Nations Building and other well-known developments.

The International Arrival Building, constructed of steel, concrete, glazed brick and masonry, is three stories high, 760 ft. long, 640 ft. deep, with two double-deck 240-ft. fingers. With the two Airline Wing Buildings, overall length is 2,300 ft., or 11 city blocks. The Arrival Building has 362,000 sq. ft. of floor space, housing customs, immigration and health services, waiting rooms, restaurants, barber shop, jewelry store, etc. The Wing Buildings have 230,000 sq. ft. of floor space.

Along the third floor, a 4,000-ft. observation deck extends the length of the buildings and fingers (almost 2 million people paid to use this deck and the one at the temporary terminal last year; countless others were admitted free—the Port Authority does not charge for children under 12 accompanied by adults, or for people on guided tours). There is also an observation deck on the 10th floor of the control tower.

The Arrival and Wing buildings constitute a decentralized passenger handling operation. With 12 million passengers expected by 1965, of which 3.3 million will be overseas passengers, a single terminal over two miles long would have been required. Therefore, only incoming flights requiring federal inspection services funnel through the Arrival Building. Outbound overseas passengers on foreign airlines go to the ticket counters in the Wing Buildings, then proceed to their planes via the enclosed second floor arcades. U.S. lines now depart from the temporary terminal, will switch later to the individual terminals.

Federal inspection services, which in the past have often left a bad taste in the mouths of incoming passengers, have dressed up and streamlined their operations at New York International. Particularly noteworthy is Customs, which changed its former system completely and installed 32 supermarket-type checkout counters in each of the two customs halls in the Arrival Building. Passengers take their baggage to any counter for inspection (duties are collected at the counter). This is said to be twice as fast as former procedures.

This entire arrival operation is on the first floor. Persons meeting passengers can watch their progress through customs through a glass wall on the second floor.

At the Arrival and Wing Buildings, there are positions to park 24 aircraft. This can be expanded to 32.

One of the architectural triumphs in Terminal City is the central heating and air-conditioning plant. The planners were faced with the necessity of locating this building—usually a stodgy and unattractive structure—in a central and prominent spot. So, instead of trying to hide it, they dressed it up, and the $7-million building now actually attracts many sightseers.

Through large windows can be seen the plant's attractively-colored pipes—green for chilled water, red for hot, orange and blue for special purposes. The plant furnishes water to air condition everything in Terminal City except the Catholic chapel and the gas station.

The Carrier system is capable for performing 6,300 tons of refrigerating work per day—among the top 10 in the world. Water for cooling and heating travels through 10 miles of pipes.

Around the oval perimeter of Terminal City are the U.S. airlines' unit terminals. These, plus the "union terminal," will cost $97 million. The airline structures are breathtaking in design and size. Eastern's, first to open, has almost as much floor space as the Arrival Building. United, with sub-tenant Delta, opens in September, Pan American and American in early 1960, TWA in 1961. Northwest, which will have Northeast and Braniff with it, has not broken ground.

The airlines will not actually own the terminals; all structures on the field become the property of the city of New York, which leases them to the Port Authority, which subleases to the carriers. The latter retain the architects and contractors, approve the plans, and supervise construction, and the bills are paid by the Port Authority. Repayment is through the leases.

Seven Miles of Runway
20 Miles for Taxiing

At present there are four runways at New York International, and a major step will be taken next month with the opening of the new $12-million instrument landing runway, making possible the operation of a dual parallel runway system. Present runways are:

13R-31L—Now being extended to length of 2¾ miles. Its present length is 11,250 ft. Width is 150 ft. with 75-ft. shoulders for 9,500 ft., 25 ft., for remaining 1,750 ft.

4L-22R—The instrument runway, 8,000 ft. long, 200 ft. wide, with 50-ft. paved shoulders on each side.

7-25—Preferred runway for jets, 10,000 ft. long, of which 8,200 ft. is 200 ft. wide with 50-ft. shoulders, and 1,800 ft. is 150 ft. wide with 25-ft. shoulders.

13L-31R—8,000 ft. long, 200 ft. wide with 50-ft. paved shoulders.

All runways are equipped with high intensity lights. In addition, the instrument runway has high-intensity centerline approach lights and sequence-flashing lights at both ends, installed and operated by FAA.

The new instrument landing runway will be the first commercial runway in the world with flush narrow gage lighting, flush centerline lighting, plus conventional runway edge lighting, and high speed taxiway exits. FAA will install the instrument landing system and approach lighting equipment. The runway (4R-22L) is 8,400 ft. long, 150 ft. wide with 25-ft. shoulders, and is parallel with and 3,000 ft. from the east of runway 4L-22R. These runways are also parallel with the instrument runways at LaGuardia and Newark.

The new runway will handle instrument landings from either end, and 4L-22R will be used for takeoffs only during instrument conditions, as well as for landings and takeoffs during visual conditions. The parallel alignment will permit instrument landings on 4R-22L while takeoffs are being made on 4L-22R.

Four high-speed taxi exits (two for each direction) will permit planes to turn off the new runway at speeds up to 60 knots. Exits are 75-ft. wide, have a radius of 1,800 ft. and intersect the runway at a 30-degree angle. They are spaced 3,330 ft. and 5,730 ft. from each threshold.

As the pilot approaches the runway from either end, he will see, in addition to conventional runway edge lights, two rows of Elfaka flush narrow gage runway lights, spaced 60 ft. apart at 100-ft. intervals extending 3,000 ft. down the runway. Beyond these is a single row of flush centerline lights every 100 ft. to give him a reference for the full length of the runway. Elevated runway edge lights are spaced at 100-ft. intervals, compared with 200-ft. called for by FAA. Lights are so wired that if one set fails, the other set still provides the 200-ft. FAA spacing.

The narrow gage lights consist of two rows of lights set flush so planes can run over them without damage. Each row consists of 30 bars, which is 7½ ft. wide, composed of three light fixtures. All fixtures in the first 1,000 ft. have two lamps per unit to give greater vertical light distribution; fixtures in the remaining 2,000 ft. have one lamp per unit. Both narrow gage and centerline lights are heated to keep them free from ice and snow.

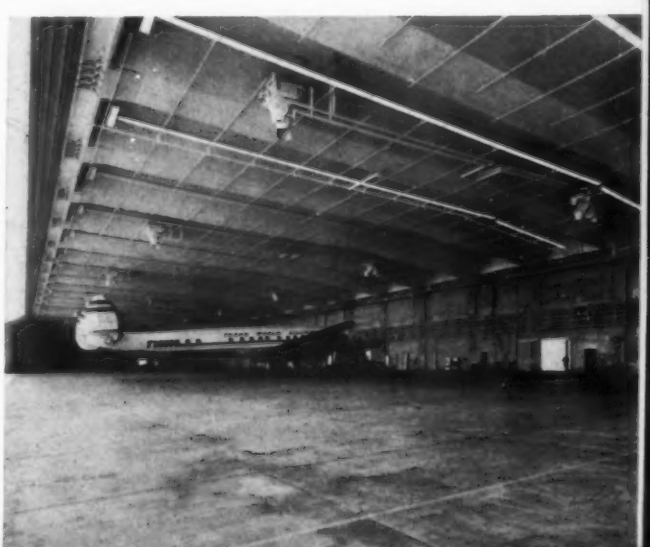
In addition to these lights, landing aids for the new runway include: high-intensity centerline approach lights, extending 3,000 ft. from both ends of the runway, each installation consisting of 30 horizontal bars of lights, and ILS at both ends. There is also transmissometer and ceilometer equipment, which measures ceiling and visibility at the approach end of the runway and automatically transmits the data to the control tower and Weather Bureau.

Idlewild's newest runway, 8,400 ft. long, will have ILS at both ends, is intended for landings only. It opens in October.

Hangars Alone Cost $70 Million

There are now 13 hangars on the field, constructed at a cost of $70,340,000. Some of these are immense structures, notably TWA and Pan American. TWA's 10-bay hangar, for example, is almost as long as three football fields. Hangar 7, occupied by Lockheed Aircraft Service, was the first large suspended cantilever hangar in the world.

These 13 hangars were built by PNYA. Now under construction are four more, to cost $19.5 million. Of the four, three are being built by airlines—Swissair, Seaboard & Western and SAS. The other, for Air France, BOAC, KLM, Lufthansa and Sabena, is being constructed by PNYA.



One of the bigger airline hangars at Idlewild is TWA's 10-bay structure long enough to contain three football fields.

Idlewild's Other Big Features

Cargo Area: Near Terminal City, occupying some 80 acres, are four cargo buildings and a cargo service building, representing an investment of $5.3 million. Cargo aircraft can taxi to the four buildings for loading and unloading and practically all airlines maintain space in the structures, which have 240,000 sq. ft. of floor space. The two-story service building (69,000 sq. ft.) is headquarters for freight forwarders, federal inspection services, cartage companies and customs brokers.

Last year, 168 million pounds of cargo were handled at the field. Overseas cargo volume is fast catching up with domestic shipments. In the first five months of this year, domestic freight totaled 39.4 million lbs., up 21.7% from last year, while overseas cargo jumped 28.8% to 32.9 million lbs.

Air Mail: A $1.4 million building will be completed soon to handle the 55 million lbs. of airmail a year.

Animalport: Built, owned and operated by the American Society for the Prevention of Cruelty to Animals, this structure will house, care for, and secure vet service for almost any kind of animal—household pets to tigers. It's the only building on the airport in which the manager resides. Typical daily rates for housing and feeding: average size dogs, $2; gorillas, $5; sea lions, $2.50.

Restaurants: The Brass Rail operates sandwich bars and coffee shops in the temporary terminal, and the same facilities plus the elaborate Golden Door (menu in six languages and gold-plated phones) restaurant in the International Arrival Building. It also handles catering for four airlines. Brass Rail is taking over a new $1.5 million building for use as a food production center.

Idlewild's cargo area totals 80 acres, permits aircraft to taxi directly to terminal for loading and unloading operations.

Air travelers principally use the coffee shops and snack bars. A very high percentage of the gross revenues of the Golden Door come from customers who have no connection with the airport and are not passengers. In its sales promotion, Brass Rail bought a mailing list of all owners of homes of $35,000 or more in Queens and Nassau counties, sent them promotional material and enclosed chits good for a free drink for all members of the party the first time they patronized the restaurant.

International Hotel: The 320-room six-story hotel built by PNYA and leased to Knott Hotels Corp. (rental estimated at $443,200 per year for 25 years) is doing a booming business. During a recent month, its occupancy was 100% almost every day (the record is 109% occupancy, says manager Herman Hanfland, on a day when a number of rooms were rented and rerented for short periods). The hotel's staff of 225 speaks a number of languages and has been stuck only once—by a guest who spoke a certain Hebrew dialect. Airlines use the hotel to feed delayed passengers (allowance is $6.50 for first-class passengers, $4 coach). Before long, it is expected that International Hotel will be enlarged.

Adjacent to but not on the airport are two other hotels—Continental and Skyway, and a big new one, the Van Wyck, is under construction.

Professional Services: A few years ago, a doctor opened an office at the airport, and was immediately swamped with work. Since then, he has taken in two doctors with him, and they have constructed their own building, in addition to maintaining offices in the Arrival Building. Idlewild also has two dentists and two lawyers.

Bank: First National City Bank is located in both the temporary terminal and Arrival Building, and is building a $750,000 branch on the Van Wyck Approach Road.

One of the world's most unusual "banks"—it does not conduct any banking business—is maintained by Chase Manhattan in the Arrival Building. The well-appointed room has no counters—only desks, chairs and sofas. It is called a "representative office," managed by Leo J. M. Pierre, a suave Frenchman who speaks several languages and whose sole job is to assist Chase customers who use the airport—give them information on conditions abroad, advise them on foreign currency purchases, etc.

Corporate and Private Aircraft: Parking facilities—but no hangar space—are available for these craft. There is not a fixed base operator on the field, and there are no plans for one, because PNYA does not encourage such aircraft to use the field unless they actually have business there. PNYA personnel handle the parking; Allied furnishes fueling.

Police: PNYA police control the airport and have the same power and authority as any other police department. PNYA has a total of 1,800 policemen, but does not release figures on the number at any one location. In the event of an aircraft accident at New York International, the police double as firemen.

Fliteseer: The first sight-seeing train at any U.S. airport started operations three months ago. A gasoline tractor "locomotive" pulls three cars, carrying 22 passengers each, and makes a 20-minute trip every 15 minutes along loading aprons, service roads and some taxiways. A guide delivers a commentary over a loud speaker system. Fare is 50¢ for adults, 25¢ for children under 12.

Buses: Five Mercedes-Benz buses are being purchased by Carey Transportation, Inc. to furnish transportation between points on the airport. At airline terminal stops, a recorded announcement will give the name of the airline in four languages—English, French, Italian and German.

Is New York International a profitable operation? Although PNYA releases no figures, the answer is yes—it is in the black after current debt service.

Facts About Idlewild

Size: 4,900 acres, equal to all of Manhattan Island from 42nd St. to the Battery. Nine times the size of LaGuardia Field.

Cost: City of New York spent $60 million before leasing the field to Port of New York Authority in 1947. PNYA has invested $222,397,200. Budget for construction in 1959 totals $75,230,400.

Traffic: In 1958, 5,902,730 passengers, 168 million lbs. of cargo, 53 million lbs. of airmail.

Employment: 22,100 with annual payroll of $108,940,000. PNYA has 500 employes at the field. By 1965, airport is expected to provide jobs for 32,000 people with $260 million annual payroll.

Existing Structures:

Animalport	$ 275,000*
Air cargo center, five buildings	5,300,000
Catholic chapel	234,000*
Central heating and refrigeration plant	7,000,000
Control tower	1,000,000
Federal building	5,000,000
Fuel storage facilities—6,880,000 gals	2,500,000
Fuel truck garage	440,000
Hangar 1 (El Al, Air France, KLM) and Hangar 2 (LAS, LAV, SAS)	1,600,000
Hangars 3, 4, and 5 (BOAC, Northeast, LASI, Transocean & Northwest	9,000,000
Hangar 6 (National)	3,000,000
Hangar 7 (LASI)	3,400,000
Hangar 8 (United)	6,000,000
Hangar 9 (Eastern)	4,500,000
Hangar 10 (American)	12,200,000
Hangar 11 (FAA)	1,500,000
Hangar 12 (TWA)	13,140,000
Hangar 14 (Pan American)	16,000,000
International Arrival/Airline Wing Bldgs.	30,000,000
International Hotel	5,000,000
Medical building	75,000*
Port Authority operations building	2,200,000
Pumping station	1,500,000
Temporary terminal and extensions	3,370,000
Industrial buildings:	
Greer Hydraulics	1,500,000
S.M.S. Instruments & Accessories, Inc.	150,000
Empire Corrugated Container Corp.	500,000
Standard Switchboard Co.	340,000
Tregeser Copper Works	220,000

Under Construction

Air Mail building	1,400,000
Brass Rail Commissary	1,500,000
Central area service station	125,000*
First National City Bank	750,000*
Fuel storage tanks	2,545,000
Hangar 15 (Swissair)	2,000,000*
Hangar 16 (Seaboard & Western)	4,500,000*
Hangar 17 (Air France, BOAC, KLM, Lufthansa, Sabena)	10,000,000
Hangar 18 (SAS)	3,000,000*
Pan American engine overhaul facility	3,000,000*
Seaboard & Western office building	750,000
Eastern Air Lines terminal	20,000,000
American Airlines terminal	14,000,000
United Air Lines terminal	14,500,000
Pan American World Airways terminal	10,000,000
TWA terminal	12,000,000

*Constructed by tenant.

Idlewild's 37 Airlines

U.S. AIRLINES

AAXICO
American
Braniff
Delta
Eastern
National
New York Airways
Northeast
Northwest
Pan American
Riddle
Seaboard & Western
Trans Caribbean
Trans World
United

FOREIGN FLAG AIRLINES

Aerolineas Argentinas
Aeronaves de Mexico
Air France
Alitalia
Avianca
British Overseas Airways Corp.
Cubana
Eagle Airways (Bermuda)
El Al Israel
Iberia
Icelandic
Irish Air Lines
KLM
Linea Aeropostal Venezolana
Lufthansa
Qantas
Sabena
LAS
Swissair
Trans-Canada
Transcontinental S.A.
VARIG

Schedule of Charges for Aircraft

Public Landing Area

For each takeoff, 35¢ per 1,000 lbs. of maximum weight for takeoff, with a minimum of $2.50.

Porter Service

For each passenger embarking upon or disembarking from an aircraft at the International Arrival and Airline Wing Buildings (whether or not such passenger actually uses porter service), 45¢; at temporary terminal, 15¢.

Inspection Space

For each passenger disembarking from an aircraft and using space made available for inspection and examination of passengers and their property by customs, immigration, public health and other government agencies, $1.50. For each passenger from Canada, 15¢.

Inbound Baggage Facility

For each inbound passenger who is not required to clear customs (whether or not such passenger actually makes use of the inbound baggage facility), 4¢. Charge not payable with respect to passengers of any airline whose baggage is handled through a baggage facility provided by that airline.

General Terminal Charges

For each aircraft arriving at International Arrival Building, $7.50.

Charges to the Public

Parking Lots

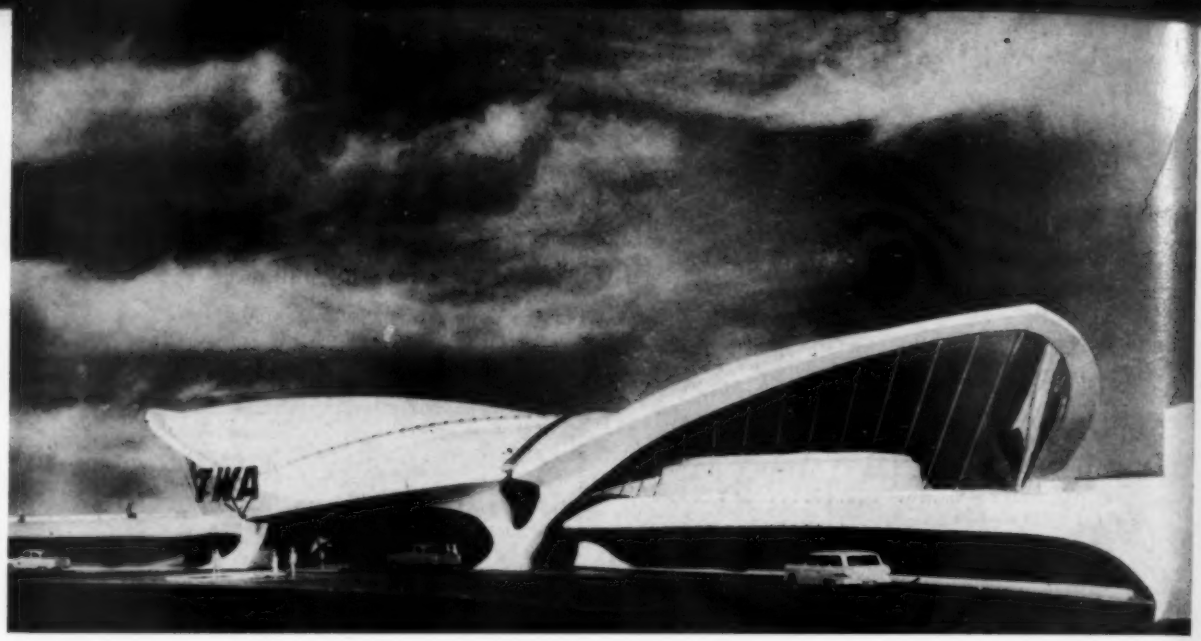
Passenger automobiles, for each of first three hours or fraction, 25¢; maximum for first 12 hours, 75¢; for each additional 12 hours or fraction, 75¢.

Metered Parking

For a 20-minute period, 10¢.

Observation Decks

Fee of 10¢. Children under 12 accompanied by an adult admitted free and such children are not admitted unless so accompanied. Observation deck on 19th floor of control tower, 50¢ for adults and 25¢ for children under 12.



TWA: Wing-Like Roof, Theater-Type Lounge

STARTLING ARCHITECTURAL CONCEPTS — A swooping, wing-like roof and a lounge that seats passengers so they may watch the field like theater patrons—mark Trans World Airlines' $12,000,000 new terminal now under construction at New York International Airport.

TWA believes architect Eero Saarinen has captured the "spirit of flight" with his roof design. Whatever its aesthetic achievement, it is certain to catch many an eye at Terminal City long before its opening for first passengers sometime early in 1961.

Designer of the prize-winning General Motors Research Center, Saarinen (Eero Saarinen & Assocs., Bloomfield Hills, Mich.) has created a cantilevered concrete shell which spans the entire 315-ft. central terminal. Arching gently from curbside entrances to loading gates, its dramatic design lies in broad, upswept "wings" which climb over each end of the terminal, seemingly supported only by leaning walls of plate glass.

Beneath the central pair of the four "vaults" created by the roof is the most unique interior feature. The main waiting lounge is, in effect, a theater showing the aviation panorama of the northern junction of Idlewild's north-south and east-west runways. Tiers of upholstered seats range in a semi-circle facing the high glass wall of the main terminal. Service shops are set under a balcony around the perimeter of the lounge. The whole area is slightly depressed to add to the lounge's separation from pedestrian traffic.

Begun two months ago, the new TWA terminal covers some three acres on the opposite side of the circle from the entrance to Terminal City. It stands between the International Arrival Building and the present temporary terminal. When completed, it will provide direct-access boarding at 10 positions servicing Boeing 707 domestic or international jets.

TWA's traditional colors of red and white form the basis of interior colors. White ceilings will span oyster-tone marble terrazzo floors and carpets of deep burgundy. Signing will be done in carmine.

Outgoing passengers enter the terminal from a street-level drive, stepping under the protection of a 12-foot cantilevered concrete canopy that extends the full width of the building. Electronically controlled doors open into the first service area—a 150-ft.-long counter for ticketing and baggage checking. On the same level, just inside the central doors, is the information desk and a large arrival-departure information board.

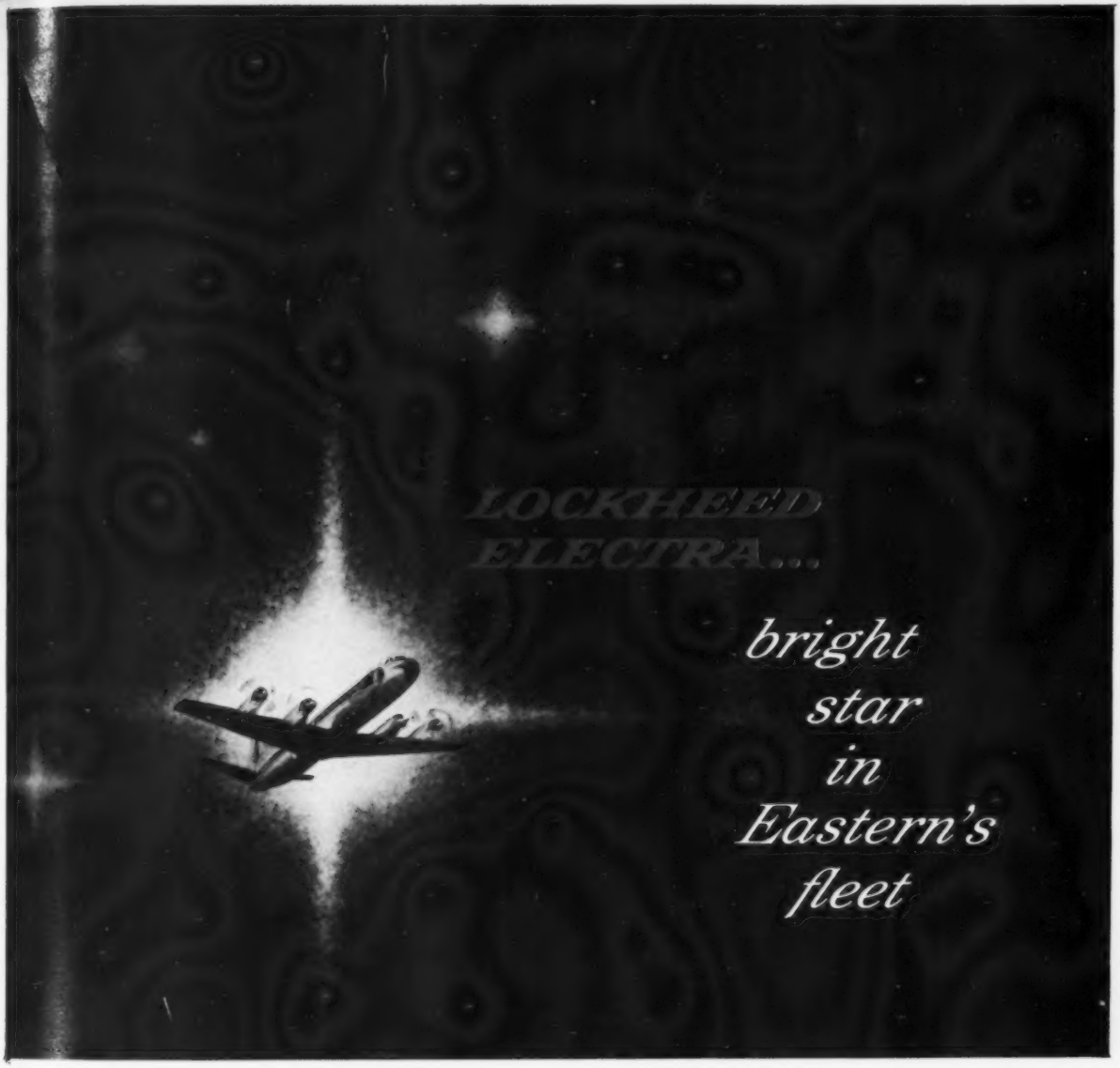
Once they are checked in, passengers move past the counter into the central waiting lounge. Flanking it on both sides, slightly elevated under the most sharply angled of the roof "vaults," are two smaller service areas. Both feature rows of tall, slender display cases showing in miniature famous street scenes of London, Paris and other cities.

On the right is a full restaurant with an unobstructed view, through one of the glass walls, of the arrival building. A separate coffee shop overlooks the central terminal area. On the left are a bar and private meeting rooms. A "bridge" walkway connects the two flanking areas.

The outgoing passenger reaches the ramp area through two 125-ft.-long passages. In the two "finger" ramp house he is provided with individual boarding rooms for each flight, each of which may be further separated for first class and coach passengers on big multi-service aircraft. He boards his plane directly through an expanding bridge.

The arriving passenger moves in an opposite direction over the same routes to the baggage claim area at street level near the information desk. He will use self-claim or sky-cap service at the 100-ft. baggage shelf.

Structural engineers for the terminal area are Ammann & Whitney. The general contractor is Grove, Shepherd, Wilson and Kruge, Inc., of New York.



Fueled...Lubricated by Sinclair

Electra – the maiden in Greek mythology who became a star in the heavens – is the apt name given by Lockheed to its new prop-jets. Forty of these new ships are joining Eastern Air Lines' fleet. Each carries 66 passengers in smooth quiet, and hops non-stop over any Eastern route at 400-plus m.p.h.

Sinclair has been a jet fuel supplier to the military for eight years, and is proud that Eastern has chosen Sinclair Superjet Fuel for the Electra. Eastern has also selected Sinclair Aircraft Turbo-S Oil for exclusive use in this magnificent prop-jet fleet – proof positive of the dependability of Sinclair's aircraft fuels and lubricants.

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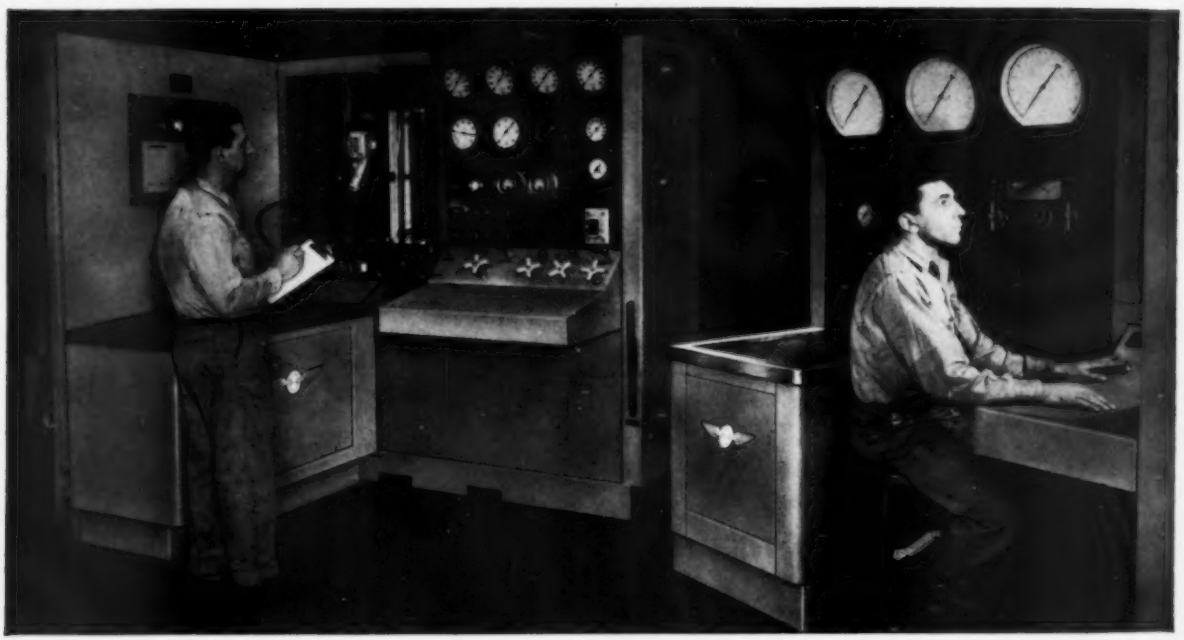

Ready for today's jets! The jet test equipment pictured was especially built for our expanded overhaul facility at N. Y. International Airport. Illustrated are the fuel pump, fuel nozzle and fuel control machines designed to test components on the P & W JT3, JT3D, JT4, Allison 501D13 and GE CJ805 jet engines. With this new equipment S.M.S. is prepared to test all jet engine accessories and components in *one* modern plant. In addition we are equipped to test superchargers, turbines and all aircraft instruments.

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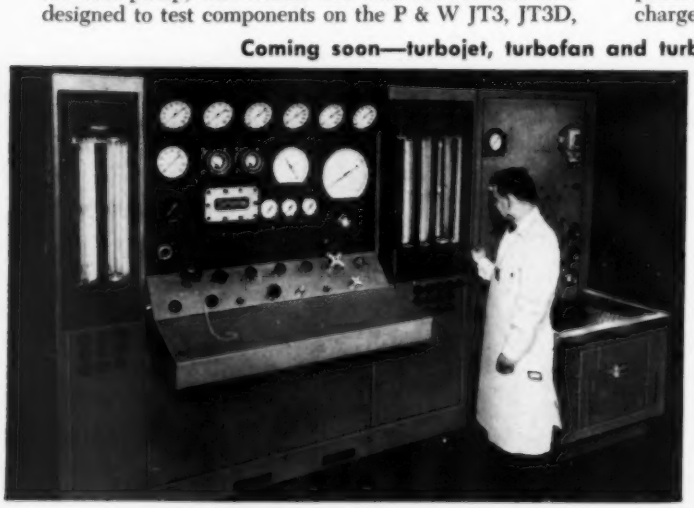

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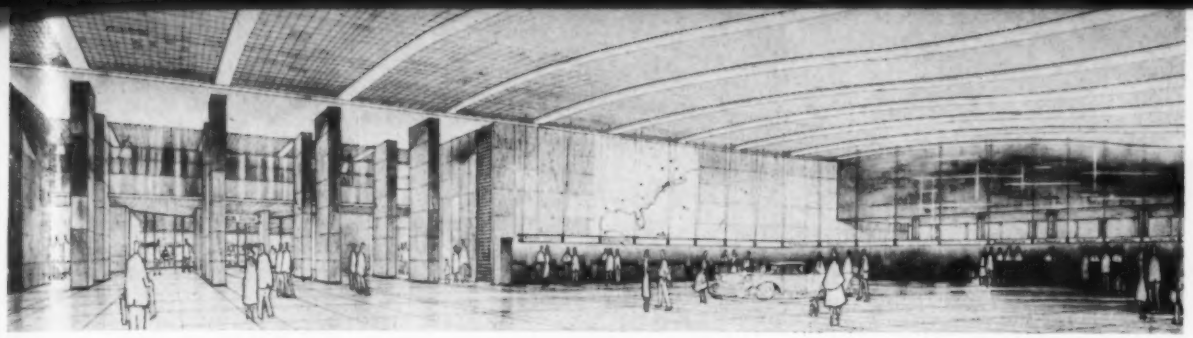


Eastern: World's Largest Terminal

THE LARGEST PASSENGER BUILDING for use of a single airline anywhere is the way Eastern Air Lines describes its $20 million terminal which opens late next month at New York International Airport.

The terminal has 361,280 sq. ft. of floor space—nearly double that of the entire passenger terminal at Newark Airport. The main lobby alone has 29,356 sq. ft. of uninterrupted floor space—almost 7/10 of an acre—and is larger than the arena at Madison Square Garden or the concourses of Grand Central or Pennsylvania stations.

The three-story fan-shaped building, which has two 350-ft.-long loading arcades stretching toward the runway area, features a complete separation of incoming and outbound passengers. It also features a complete lack of stairs —passengers use ramps.

Passengers who have arrived by plane proceed from the arcade to the first floor area at the front of the building to claim their baggage. Passing through the structure at this point is a three-lane vehicle concourse, where they can board taxis or buses. Also on the first floor are operations office, medical office, employe snack bar and storage space.

Outbound passengers enter the building via another vehicle concourse on the second floor and proceed to the huge main lobby, where there are 64 positions—32 for ticketing, 32 for check-in. The positions are 360 ft. long. There are 100 seats in the lobby, another 160 in several adjacent waiting rooms. Passengers get to their planes via ramps to the first floor of the loading arcades.

Also on the second floor are a 200-seat dining room and cocktail lounge overlooking the runways and a 130-seat coffee shop, all operated by Hot Shoppes, and an arcade for shops and concessions.

The third floor contains flight crew quarters, communications, various operations offices transferred from La-Guardia, a VIP room, press room, employe lounges and lunch rooms, and space for future expansion.

EAL, which expects the terminal to accommodate 2.3 million passengers and visitors in 1960, has provided loading positions for 24 aircraft. Atop the building overlooking the apron is the glass-enclosed coordinator's tower. This position will issue instructions to planes on the ground before takeoff, after landing and while taxiing to or from runways. It will also have radio control of all EAL ground equipment, and will make flight announcements to passengers.

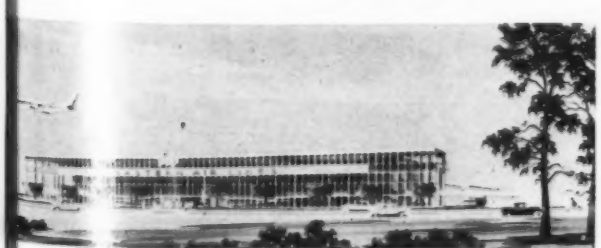
At ground level midway along each loading arcade are passenger service areas, with rest rooms, telephones and information counters. On top of the arcades are observation decks; below are utility rooms and baggage passageways.

Construction is of steel, glass and reinforced concrete, with marble, granite and aluminum exterior trim. There are more than 141,000 sq. ft. of glass, much of it tinted to eliminate glare, 20,600 cubic yards of concrete, 40 miles of piping and 1,000 miles of wiring.

The 16 steel-reinforced concrete girders that span the main lobby each weigh 315 tons and are 200 ft. long.

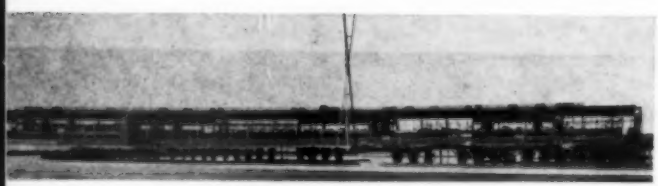
A snow melting system has also been installed. Over 14 miles of welded steel pipes, which will carry 380-degree water, have been laid in the upper and lower vehicular ramps, service courtyards, baggage cart runways and passenger exits leading to the apron area. In all, 76,000 sq. ft. will be kept clear in this fashion.

EAL's architect was Chester L. Churchill, who died last year, and work was completed by Albert C. Gray. General contractor is Gilbane Building Co., Providence, R.I.



Front view of three-story building. Main lobby (top photo) is on second floor.

United: Design for Fast Loading



UNITED AIR LINES' $14.5 million two-level passenger terminal, scheduled for completion this month at New York International Airport, incorporates improvements in baggage handling and ticketing designed to speed passengers from lobby to planes in as little as two minutes.

Construction of the crescent-shaped terminal, largest on UAL's system, is mainly of aluminum and pre-cast glass with aluminum-covered steel columns set 28 ft. apart.

Situated on a 27-acre site, the building has 250,000 sq. ft. of space and will accommodate 2,000 passengers a day next year. By 1961, UAL says, it will be able to handle 1,250,000 passengers a year and will be a self-contained shopping center supplying all of a traveler's needs. Delta Air Lines will be a sub-tenant.

At the start, the building will have one finger with five gate positions. Later, facilities will be added so that there will be positions for 18 DC-8s plus four smaller piston planes.

Pre-ticketed passengers will enter at the first level, then proceed through UAL's new "express check-in" system (*AIRLIFT*, April). This system has positions somewhat like a supermarket at which baggage is weighed, tagged and placed on a conveyor. If a passenger has excess baggage, he continues beyond the first bank of check-in stations and pays at an "excess" counter. Passengers then proceed via four high-speed escalators to the second level, then along the concourse to a "hold" room at the gate, where tickets are checked. An agent at the door directs people to the right or left side of the room, depending on whether they are first-class or coach riders. When the flight is called, they board through one of two "Jetways" at the level of the plane's doors, first-class using the front, coach rear.

These enclosed passageways, built by Pacific Iron and Steel Corp., Los Angeles, are of a lightweight honeycomb core construction covered by steel sheets, and can be moved into place from the stowed position at the side of the terminal to the aircraft door in one minute.

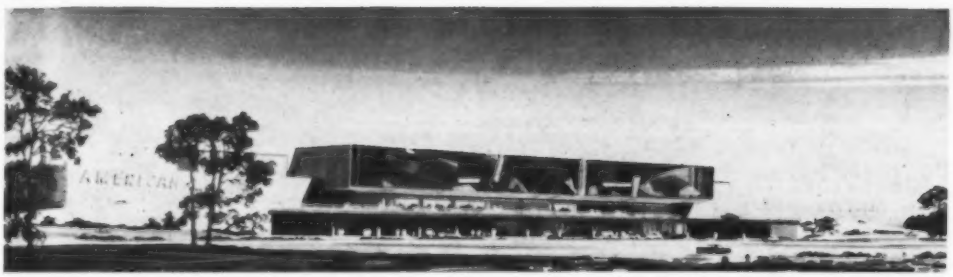
In the terminal, flight information will be televised, with sets in each of the eight lounges.

A 200-seat dining room, a coffee shop, Charcoal Grill, Club Lounge and Commuter Bar will be operated by Union News Co. Food for all UAL flights will be prepared in a flight kitchen in the northeast wing. There will also be a combination haberdashery, book store, cosmetic shop, drugstore, camera supply shop, gift shop; rent-a-car counters and baggage checking lockers.

The terminal was designed by Skidmore, Owings and Merrill; contracting firm is Humphrey's & Harding.

Glass-and-aluminum terminal ultimately will accommodate 18 DC-8s plus four smaller planes. United says passengers can get from lobby to planes in as little as two minutes.

American: Gate Lounges, Murals and Stained Glass



World's largest expanse of stained glass dominates front. Below is cutaway of gate lounge.

DEPARTURE LOUNGES at gates, second-level passenger loading, a 300-ft. ticket counter and the largest expanse of stained glass in the world are features of American Airlines' $14 million passenger terminal, which will open early next year at New York International Airport.

The building, situated on a 29-acre site, has three floors, 125,000 sq. ft. of floor space, and two loading concourses. The stained glass, 320 ft. long and almost 23 ft. high, goes across the entire front of the structure. Its use solved the problem of strong sunlight caused by the southern exposure of the building front.

Glass is also used in the interior. A full glass wall, 30 ft. high, runs the length of the building behind the 300-ft. ticket counter (28 ticket positions) on the main floor. On either end of this floor leading to the concourses, murals 17 ft. high and 52 ft. long will be executed by Carybe, South American muralist. Glazed tile in multi-color abstract patterns will also be used.

Passengers remain on one floor from the time they enter raised, covered 340-ft. terminal entrance plaza until they board the plane. Eight gate positions, with separate departure lounges, will be in operation when the terminal opens. All pre-flight details will be handled at the lounge entrance.

Aircraft will nose in under their own power adjacent to the lounge. When the plane is in position, a telescopic passenger corridor will pivot, then extend mechanically until it fits against the rear door. A similar but simpler loading device will connect the lounge with the plane's front door. Bridges are enclosed to protect passengers from the elements. At departure time, the rear corridor contracts and pivots to its original position. The front bridge can remain in position for last-minute passengers.

Although the loading concourses will have only eight gates when the terminal opens, they were designed for 16, and the additions will be made as traffic warrants. Passengers move along the second level of the concourses; baggage and other services use the lower level.

At the east end of the terminal's main floor will be a plush dining room, cocktail lounge and snack bar. Another cocktail lounge and snack bar will be at the west end. Sky Chefs, AA subsidiary, will operate the food concessions.

On the mezzanine will be public seating areas, lounges and meeting rooms. Closed-circuit television and a hi-fi public address system will disseminate flight information for passengers.

Architects for the terminal were Kahn and Jacobs. Turner Construction Co., which built AA's $12 million hangar, is also handling the terminal project.

Two loading concourses have eight gates, can be expanded to 16.

JETS TO THE PACIFIC

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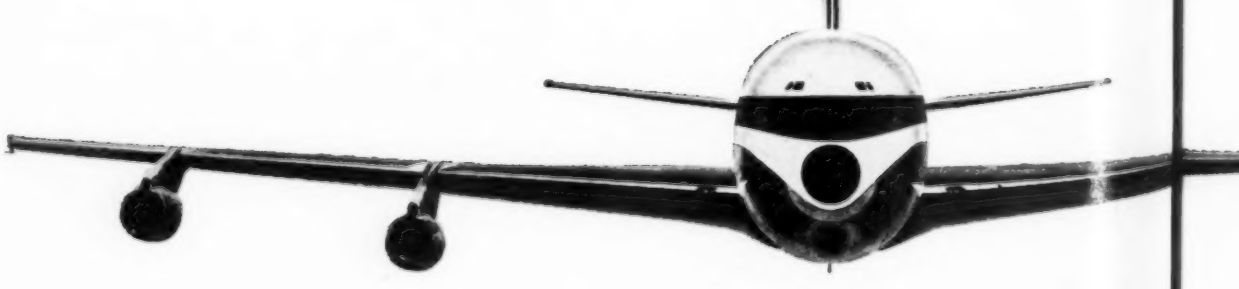
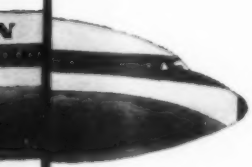


ROME



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On *every* Jet Clipper flight you have your choice of either deluxe or low-fare service.

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*Trade-Mark, Reg. U.S. Pat. Off.

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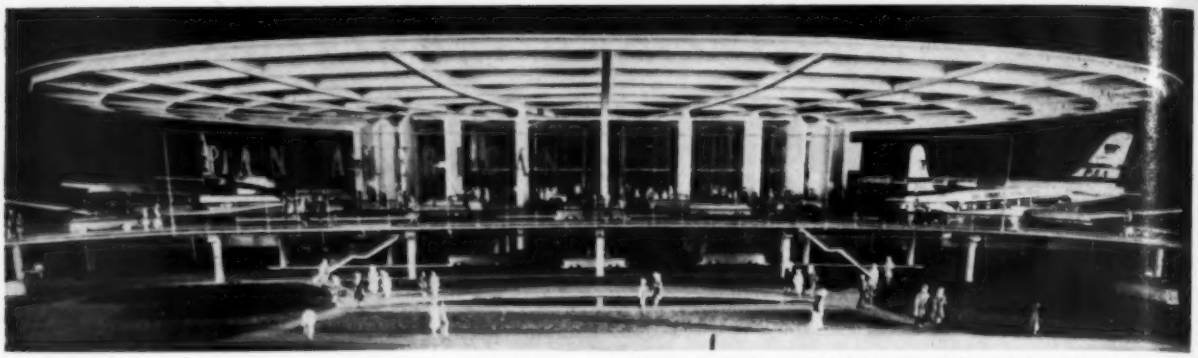


Six jets can be nosed in under this novel concrete-and-steel roof. Passengers are completely protected from weather. Lower photo shows stage of construction of $10 million building.

Pan Am: An 'Umbrella' Terminal

AN "UMBRELLA-TYPE" TERMINAL, the design of which is so unique that the architects have had five special studies made during its construction, will be completed by Pan American World Airways at New York International Airport early next year.

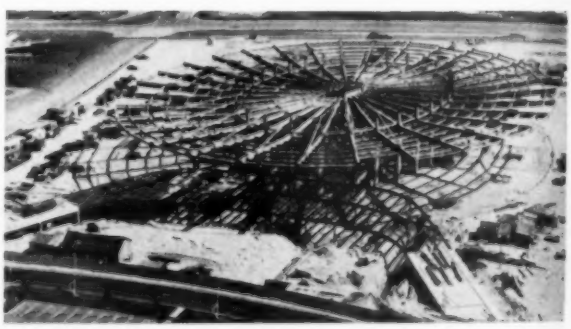
Two of these studies, interestingly, might apply to new airplanes—aerodynamic characteristics of the roof design, and wind tunnel tests connected with the world's largest "air curtain" door. Others involved acoustical and noise studies, sculpture and lighting (by a Broadway stage lighting expert).

The $10 million, 100,000 sq. ft., three-level terminal, on a 17-acre site next to the International Arrival Building, has a cantilever roof of 176,000 sq. ft.—four acres—in area, stressed to withstand hurricane winds. This roof, of concrete and steel, would be large enough to cover Yankee Stadium. It has 32 steel girders each weighing 75 tons fanning out from a central core and sweeping upwards on all sides. These girders, supported by 31,000 ft. of two and a half in. diameter cable in groups of six, are held by a central 84 x 54 ft. anchor that extends 27 ft. into the ground.

Six big jets can be nosed in under this roof, giving passengers complete protection from the weather during loading and unloading. The terminal will be used principally for departures—the only arrivals will be those with passengers who do not have to clear customs.

Departing passengers will arrive at the second floor of the terminal via a ramped entrance roadway. The "front door" is an 89-ft. wide air curtain, which eliminates the trouble of opening doors when passengers are burdened with baggage and other gear. To make certain that the curtain would cope with wind conditions and velocities, the architects had wind tunnel tests conducted on a scale model at Zurich University, Switzerland. A total of 600,000 cubic ft. of air per minute will be blown across the entrance through ducts on the roof and returned through floor ducts. Six centrifugal fans of 75 hp each provide the air movement. Temperature of the air will be maintained at the same degree as the interior of the building.

Immediately inside the door are new "automated" baggage counters, arranged in the form of four islands.



Each island has two conveyors, each conveyor being connected to a scale. PAA says these eight units will handle the baggage of 1,000 passengers per hour.

After checking baggage, passengers will go to check-in counters to complete seat selection, documentation and other ticketing problems.

There are 1,000 seats in the terminal (compared with 358 in all areas at La Guardia Field). Passengers load through the front door of the airplane via a "bridge." This is a structure about 35 ft. long which is supported at the terminal end on a rail fastened to the faces of the main concrete piers. At its outer end, the bridge has two legs on wheels, one of which is motorized. When the plane has taxied nose in, the gangplank is rolled up to the door. At departure, it is rolled away and the plane is towed out to "firing up" position.

In the terminal—the walls of which are all glass—will be waiting room areas, a 110-seat restaurant, 30-seat bar, 50-seat coffee shop, 50-seat employes' cafeteria, a bank, gift shop and a 1,000 sq. ft. museum. The latter will house historic flight logs, airplane models, trophies and other items connected with the growth and development of Pan American. There will also be a Clipper Club, on the mezzanine level. The east and west sides of this 20 x 65 ft. room will be glass from floor to ceiling.

Architects were Tippetts, Abbett, McCarthy and Stratton, with Ives, Turano and Gardner as associates. Turner Construction Co. is the contractor.

Fueling at Idlewild:

200 Million Gallons a Year

EVERY OUNCE OF AVIATION FUEL pumped into an airplane at New York's Idlewild Airport is handled by one gas attendant—Allied New York Services, Inc.—but it's still the toughest fueling operation in the world.

Last year Allied pumped 201,494,572 gallons of fuel into aircraft at Idlewild. Two months ago (July) it handled 23,000,000 gallons including 8,542,222 in jet fuel. By next July it expects to hit 34.6 million gallons.

But volume alone isn't what makes the Idlewild fueling job tough. In serving the 37 airlines operating into the mammoth airport, Allied maintains no fewer than 22 distinct fuel segregations.

Its 9.8 million gallons of storage is "non-comingled to the Nth degree" says Dan Fraad, Jr., president of the parent firm, Allied Maintenance Corp., located in New York's Empire State Bldg.

An example: the big jet operators at Idlewild today are Pan American, American and TWA. If Pan Am uses one brand of fuel, AA another and TWA a third, they get only their specific supplier's product, nothing else. Add to these the various grades of avgas and the number of airlines with different fuel contractors and you have the explanation for why Allied operates a fleet of 131 big gas trucks on the airport.

Today its operation may vary from a 12,000-plus fuel order for a jet to 50 gallons for a New York Airways helicopter. For international airlines its services extend far beyond fueling. It provides a complete fleet service, cabin cleaning, ground air conditioning, etc. and has recently bought AiResearch and Atlas-Copco ground units for starting and towing the big jets.

Allied has been at Idlewild since the airport opened and its fueling safety record, spearheaded by v.p. Amos Buckley, has been spotless. Every fuel hose it uses is hydrostatically tested once a month. It keeps a detailed operating history on every truck from the day it goes into operation.

In the early months of jet operations when Pan American operated training flights from Long Island's MacArthur Airport, Allied shifted crews to meet the need, even brought supervisors from Dallas and Fort Worth to give them early jet knowhow.

Allied's employment at Idlewild, including fueling and fleet service now numbers between 1,000 and 1,100. It handles 2,300 airplanes a month but services about 16,000 with fuel.

To handle the big job, Dan Fraad has two vice presidents right on the airport—Al McDonald, a 12-year Allied veteran who came from TWA and Carl Heilsten, the boss of fueling operations, who joined Allied from Cities Service.

From its first big job at Idlewild, Allied has travelled far in aircraft fueling. In the U.S. it now operates at Pittsburgh, Washington, St. Louis, Forth Worth, Dallas, Houston, Cleveland and Boston. Its aviation business, including ramp fleet service, accounts for about 30% of the total gross business of Allied Maintenance.

At Gander, Newfoundland, it operates all airport services, ramp operations, a consolidated airline ticket counter —even maintenance. Its mechanics, about 50, have been trained on the West Coast and in England on all the big jets flying or due to fly the North Atlantic. Another chore it recently took on at Idlewild in aviation is warehousing. It supplies the stockroom staff for Boeing in its jet parts store and will do the same for Douglas when its parts warehouse gets into full swing.

Big fleet of fueling trucks maintained by Allied to meet Idlewild's complex fueling needs. It numbers 131 trucks.

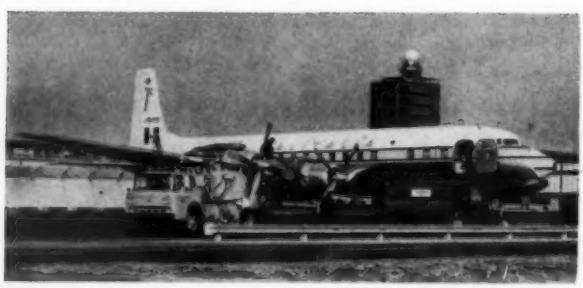
Center of operations for LAS-NY is Hangar 7 pictured here. Immediately to right and above is office and warehouse facility. LAS-NY also occupies 50% of space in two other hangars at Idlewild.

Idlewild's No. 1 Mechanic . . .

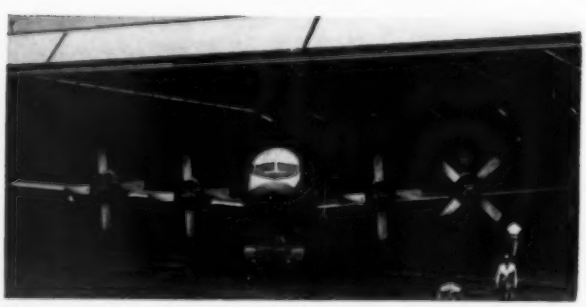
Lockheed Aircraft Service

THE BIGGEST AIRLINE maintenance operation outside of the airline industry is Lockheed Aircraft Service-New York, based at Idlewild.

It does everything the airlines do in aircraft engineering or maintenance—and a few others beside.



Turnaround on the ramp. LAS services an Alitalia DC-7C at terminal using mobile crew.



Tilted Electra. LAS rolls out first American Airlines' Electra after completing nacelle up-tilt. Project takes one week per airplane.

It turns out 78 airline departures a week—40 on the flight line at Idlewild's terminal, 38 from its hangar where it does maintenance for a number of foreign airlines.

Its assignments vary anywhere from a two-hour (six man-hour) turnaround on one of three "pads" it maintains at the terminal to a 12,000 man-hour complete overhaul of a DC-7 or Constellation. Its biggest customer is LAV for whom it does the complete maintenance job on an equalized check system it developed.

Besides these more or less routine chores, it handles aircraft modifications (an Electra nacelle up-tilt line at present), repairs damaged transports anywhere, anytime, maintains the USAF and Navy early-warning radar fleet, does contract maintenance for FAA at Atlantic City, and is the exclusively licensed Boeing service representative for the 707.

Lockheed Aircraft Service came to Idlewild on October 26, 1949 and today operates a 41-acre facility that employs about 1,950. It has 245,000 sq. ft. of hangar area, 869,000 sq. ft. of ramp area, 72,000 sq. ft. for shops, 30,000 for offices and 72,000 for warehousing.

LAS-New York operates like an airline and its personnel think like the airlines. The head man, v.p. Rahland C. Zinn, has been in the airline business for 24 years, starting as an engineer with Pan American. He came to Lockheed from Northwest where he was director of maintenance.

Airline thinking at LAS-NY is immediately apparent in its maintenance hangar. A scoreboard over the foreman's office registers the 354th on time delivery. Today no doubt the number is a lot higher.

Ever since it began extensive airline operations in 1953, LAS has been keeping track of its product. Here's how it performed since then:

Year	Aircraft Delivered	% Aircraft On Time	LAS Employment
1953	965	87.3	n.a.
1954	1,700	88.0	854
1955	2,995	90.1	1,408
1956	2,703	92.0	1,463
1957	2,958	94.7	1,533
1958	3,850	96.3	1,481
1959*	1,638	98.7	1,950

* First 6 mos. Employment includes Atlantic City.

Among LAS customers today are Alitalia, Iberia Varig, LAV, Aerolineas Argentinas, Avianca, TSA, Flying Tigers, Trans Caribbean, Overseas National, Transocean, General Overseas and Global Airways.

It has modified DC-6s to high density seating for American Airlines (one of its biggest jobs), converted Boeing Stratocruisers for BOAC, and is handling the Electra nacelle up-tilt on American, National and Braniff aircraft.

Max Conrad—poet, pilot and A & E mechanic—receives congratulations from Herb Fisher, tells Fisher how he built six big gas tanks (460 gals.) into this roomy Piper cabin, then sat on one for three days with scarce elbow-room to fly.

Battlecry—"Let's Fly!"

"... sicker'n a dog—
oh boy!
was that a long night!"

A behind-scenes report on Max Conrad's historic conquest of an ocean and continent—a World Record distance flight in a Piper Comanche specially equipped with new Foul-Resistant Champion Spark Plugs . . .

by **Herb Fisher**

international aviation authority, veteran test pilot, author

At 2:47 p.m. on June 4—58 hrs.-38 min. after takeoff from Casablanca, Morocco—a 56-year-old grandfather, so parched from thirst he could scarcely speak, landed a Piper Comanche at Los Angeles Airport. Max Conrad had set a new light-aircraft World Distance Record—7,668 miles. Light aircraft or heavy, the only longer flights officially on record are those of a multi-engine Navy bomber—11,236 miles, Australia to Ohio, crew of four—and a KC-135 jet tanker, 10,233 miles, Tokyo to the Azores. Conrad exceeded Pat Boling's recent light plane World Record by 812 miles.

As this shy, Lincolnesque "flying granddaddy" hit the headlines worldwide, his answers to countless variations of "How'd you do it?" invariably boiled down to this: "Oh, pretty much routine—just sat and flew, that's about all . . . " Max Conrad, alone, really knows what he went through during this lonely conquest of an ocean and continent. In some ways, it was an incredible flight, with conditions most grueling at times; for sure, it was a real "torture-test" of man and machinery.

This is the behind-scenes report on that flight:

Tricky Takeoff

Casablanca, June 1. With 520 gallons of B-P 100/130-octane petrol aboard, the Comanche grossed at 5,000 lbs.—*its gross load nearly three and a half times its empty weight.* Arabs and French stood hushed in the Moroccan dawn as the overloaded craft hurtled down the Cazes Airport runway, braked, taxied back, repeated acceleration tests again and again. Max Conrad found he could accelerate

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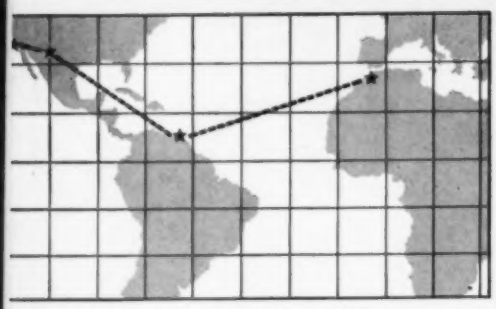


A classic in light-plane achievement: Nonstop, Casablanca to Los Angeles—on a single engine!

to 65 mph. in 900 feet, to 90 mph. in 1,600. He'd inflated tires to 50 lbs., twice normal pressure. He'd pumped up main landing-gear struts. He'd replaced a big generator with a small one; he'd removed starter, cowling latches, handles, door and window trim—all possible weight and drag items from an otherwise standard production-line Piper, selected at random from final assembly in February. Only "extra equipment" besides special radio gear and cabin fuel tanks was an inflatable life raft and a Mae West. He carried 13 quarts of oil—only one quart extra—trusting the 250-hp. Lycoming's reputation for low oil consumption. A new kind of spark plug had been rushed to him by Champion—plugs said to resist fouling-deposit build-up on prolonged flight.

Conrad was all set . . .

June 2, 11:09 a.m. Unfavorable direct crosswind of 8 knots. Unfavorable 6,000-ft. runway with no over-run. He'd have to lift off northeastly, directly over Casablanca . . .

Conrad waved, yelled the slogan made familiar during a life-long crusade to get youth air-minded: "*Let's fly!*"

He "ran scared" down the runway—"these 10 seconds, I'll admit, were full of grave misgivings . . . squeezed into my little cubby-hole, sitting on one gas tank and surrounded by the others I'd built into the cabin, I felt I'd painted myself into a corner and now it was just too late to get out . . ."

At 110 mph. and 4,000 feet down the strip, the plane lifted gently—"I was just plain surprised at how easy it did get off—and boy! those climb-out moments were the happiest and most relieved ones in my life!" The Comanche climbed out over Casablanca at 500 feet per minute *—despite the payload of more than double its own weight.*

Throat dry, Conrad pointed his plane at the Atlantic and reached for the water jug. No water! He'd forgotten it—while remembering everything else. He had only a thermos of coffee and tea . . . no food . . . and one great ocean and one great continent ahead . . .

The "Big Lonesome"

The 3,700-mile Casablanca-Trinidad leg is one of the longest, loneliest stretches in the world, unfrequented by airliners, ships or weather boats. Little weather data is available; navigation aids are nil. Conrad flew dead-reckoning with a standard Piper compass . . . bucking headwinds the first hundred miles, then entering the first of a series of buffeting rain squalls.

Rain and extremely rough air were to plague him throughout his entire 6,000 miles over open seas—though he varied his altitude, in frustration, between 100 and 2,500 feet . . .

Fore and aft of "no-return"—beyond African radio reach and too far out to pick up South America—time was a turtle on an endless racecourse: "You just never know that inner grip of real loneliness—aloneness—until you're stuck there alone with all the vast forces of nature—endless black skies and a mighty empty ocean—and cut off from everybody and everything in the world. It's a funny feeling, like a 'break-off' from the world might be . . . and here I'd had 55 solo ocean-crossings under my belt! . . ."

Conrad picked a wicked rain squall and purposely plunged into it. He held his thermos cup out the window. The torrent swooshed out as fast as it came in. He got nary a drop. "Exasperated, I removed the funnel-shaped antenna-lowering tube and held it out. I got barely enough to wet my lips." Despairfully, he programmed his tea and coffee for one sip per hour . . .

Reconciled to rough air, Conrad relaxed. Drowsiness set in. Drowsiness that was to nag him with increasing frequency as the trip progressed through its second and third day . . .

"To navigate under these conditions, you've got to stay more than awake—*alert!* On Piper AutoControl, it's easy to let the plane fly itself. Squished in with the six big gas tanks, I couldn't move around much to perk myself up. So I staved off drowsiness by straining forward in the seat till it hurt, then sitting back again and forcing myself to think through every step of something I wanted to build—or planning the next steps in my campaign to give children more opportunities in aviation . . ."

Conrad crossed Trinidad at tree-top level—so the Federation Aeronautique Internationale, world governing body

". . . an inner grip of real loneliness, cut off from everybody and everything in the world . . ." Max Conrad, in describing his historic conquest of an ocean and continent for the World Distance Record, June 4, 1959.

for World Record attempts, could officially recognize his plane—at 26 hrs.-39 min. from Casablanca. Average speed so far, 140.8 mph.

Showdown

After Jamaica, night closed in again. And all hell broke loose: Severe thunderstorms raked the entire Gulf of Mexico, blacking out communications and navigation with ADF and putting the overloaded Comanche through a real stress wringer. Pilot? "Well, my minted Arab tea had become rancid, so I was just sicker'n a dog—oh, boy! was that a long night!"

It was a night of illness compounded by "many black hours of doubt." A night of listening hyper-sensitively to the plugs firing that 250-hp. Lycoming as it pulled the heavily burdened Comanche. A night of being alone as he'd never been before . . . Sure, Champion had been firm, unequivocal: "Those plugs are specially designed to resist ordinary fouling-deposit build-up from taxi through prolonged flight, regardless of operational extremes, and to give you smooth full-power all the way . . . it's a major engineering advance, with a new firing-end providing self-cleaning action by combustion gases . . . they're already tested, approved and available for Lycomings and Continentals—" Well, be that as it may, the plugs were "experimental" to him, they'd never had a workout on a flight like this . . . and nobody'd ever flown as far as he aimed to fly . . .

For six hours Conrad was unable to establish communications or get a station bearing. Fearing drift into the mountain barrier of Yucatan if he kept his compass heading, he veered northward—then, flew aimlessly for 500 miles, "just stooging around the Gulf," awaiting daylight and abatement of the violent electrical storms . . .

At 5:33 a.m., Conrad hit the sunny skies of Corpus Christi. Four hours over ETA. (The 500 miles of "Gulf-stooging," if included in his non-stop distance record, would make 8,300 actual miles flown!)

From Corpus on, it was a grueling endurance run, "hugging the desert and keeping an eye and ear on that engine!"

A hero's welcome was set for Conrad at El Paso, original destination. But he'd been figuring: Since Casablanca, he'd gradually reduced power from 131 to 100 mph.-indicated, to extend range, and hadn't touched his two 30-gallon wing tanks yet. Also, despite constant low-power flying and the other adverse operating conditions, the Lycoming engine "was still purring like a kitten, though I was just certain those plugs must be heavy with fouling deposits by now." Scarcely able to speak through parched lips, Conrad radioed: "I'm going to try to make Los Angeles—but

A long and lonely vigil for family, too . . . then—the happy ending!

". . . farther'n any light plane had ever flown, yet the fouling-deposit build-up I expected just wasn't there! It's a remarkable bit of spark plug engineering you people really ought to holler about . . ." Conrad, center, reporting to R. K. Christie (L), Champion Vice-President, Research & Engineering, and R. L. (Doc) Anderson, Aviation Service Manager, on torture-test of new *Foul-Resistant* plug.

I'd sure trade a gallon of gas for a glass of that El Paso water right now!"

With a bevy of airborne newsmen and photographers in tow, Conrad climbed from 100 to 10,000 feet and aimed for the Pacific.

City of Angels

The afternoon of the third day, Max Conrad set down, near mute with thirst and fatigue . . . into the pads, pencils, microphones and cameras of newsmen . . . grabbing a glass of water . . . then, into a phone booth to talk to a daughter in San Francisco . . . then, an hour after landing!—taking off for Santa Ana, a motel bed and a midnight walk "to rest up before sleeping."

"Could have gone another 500 miles," Max told me later. "I had 30 gallons left in my wing tanks. Fuel consumption for the whole trip averaged 8.02 gallons an hour. Speed, 131.1 mph. And oil, just seven quarts! But one of the things I was most curious about, Herb, was this new plug they're calling *foul-resistant:* Well, the mechanic and I pulled the plugs at Santa Ana and took a hard look at those two-prong electrodes, bigger bores and longer core noses.

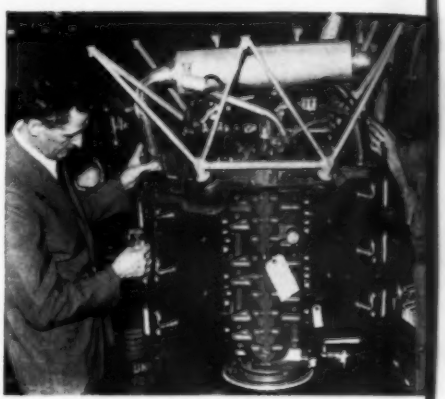
"Herb, the build-up of lead and carbon that I expected *just wasn't there.*

"That different kind of firing-end really let those combustion gases blast 'em clean! After a flight like that—Paris, Casablanca, taxiing, then pulling this load through the bumps to L.A., farther'n any light plane'd flown—it's really a remarkable bit of spark plug engineering that Champion ought to holler about!

"I've had to turn back on flights—a try for records, too—because of trouble.

"But, Herb, I've never made a distance flight like this where *everything* worked so one hundred per cent perfect *all* the time!

"That engine never missed a beat . . ."



Conrad (L) picks a standard 250-hp. Lycoming off assembly line. Fired by a new type of Champion plug, it powered his production-line Piper Comanche to a World Record. The new plugs are now available in RHM 38E, RHM 40E, REM 38E and REM 40E designs for Lycoming and Continental engines.

Reporters press forward so they won't miss a word as Conrad bolts into phone booth, moments after touch-down, and talks to a daughter in San Francisco.

WHO IS MAX CONRAD?

Flyin' Granddaddy—10 children, 7 to 27; two grandchildren . . . 36,000 flight hours; A & E mechanic.

Songwriter—Has composed music fervently for years, mostly while soloing ocean; several love ballads recorded. "Flyer's Rosary" means most to him; "Hills of Sicily" he thinks best. Says "I'd rather write one song that'd last than hold 50 flight records."

Aviator—Paradoxically, studied music, mechanical engineering in college. With orchestra, attended first Ford Air Show, 1926, Detroit; inspired to try to create "flying orchestra." Took flying lessons, quit with 3 solo hrs., bought plane, barnstormed country, instructed. "First student soloed when I had but 38 hours." Owned 2-plane "airline" in '29. Next, charter outfit, flying "personally conducted" sightseeing tours to Calif. War II, headed 6 aviation schools. Next, Northwest Airways, bush-flying Alaska, Canada. Then, 9 years Minneapolis-Honeywell pilot. Now, veteran ferry pilot.

Habitual Lindbergh—First crossed ocean in '48 (Christmas) to visit family in Switzerland: "Too leary of airliners, so, took the Queen Mary!" Made first ocean flight two years later—solo; a Piper Pacer. Now has 56 ocean-crossings, more scheduled . . .

Youth Crusader—Established "airport workshop" for kids in hometown, Winona, Minn. "Grubstaked" promising ones with own time and money. (Most repaid him years later.) *Winona reportedly has produced more airline pilots per capita than any other U.S. city!* — "because kids had a *chance.*" At Congressional hearing in '52, Max interested Congress in nationwide "Winona Experiment," explaining how he'd started Minnesota's with Tri-pacer parts he'd bought for kids to assemble, advocating cities establish Youth Centers with recreational and "aviation workshop" facilities at municipal airports. — FISHER

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SALUTES MAX CONRAD

Circle No. 115 on Reader Service Card.

Idlewild's "On the Spot" Overhaul Shop

SMS moved to its Idlewild headquarters in 1948, is raring to go with new jet accessory overhaul facilities

IDLEWILD'S "OLDEST TENANT" with a facility buzzing with brand new activities is the study in contrasts that represents SMS Instruments & Accessories, Inc.

S. M. Schusheim, founder and president, moved into Idlewild in 1948 with a 10-man instrument shop. His specialty was instruments and his label of proficiency was the certificate "CAA Approved Instrument Repair Station No. 3500" he brought with him from Westchester County Airport.

Today Schusheim employs more than 60 highly trained instrument and accessory overhaul specialists, expects to add another 40 to his payroll in the next four months.

The big reason: jets. A new 5,000 sq. ft. wing on the SMS facility houses all of the latest test gear built by Greer Hydraulics, Inc. for overhaul of jet and turboprop fuel pumps, fuel controls and fuel nozzles.

When Schusheim opened his shop at Idlewild the diet of the day was overhauling a $200 instrument in three hours, handling its 40 to 50 parts with test equipment costing about $8,000.

With the jets, he is set up to overhaul a $7,500 control in 45 hrs. but it takes a $50,000 test installation to overhaul, rebuild and test its 850 parts.

Last year Schusheim's shop turned out 4,625 overhauled or repaired instruments and 6,019 accessories. It handles a "package" arrangement with Seaboard & Western Airlines involving some 95 separate units whenever the airline ships a Turbo Compound engine to Curtiss-Wright for overhaul. He does instrument work at one time or another for every airline, in most cases directly, in other instances through Lockheed Aircraft Service, his next door neighbor at Idlewild.

Jets force expansion

With the increasing introduction of jets he hopes to expand this business manyfold, hence his $200,000-plus investment in jet accessory overhaul facilities. Some carriers are well on their way toward signing up.

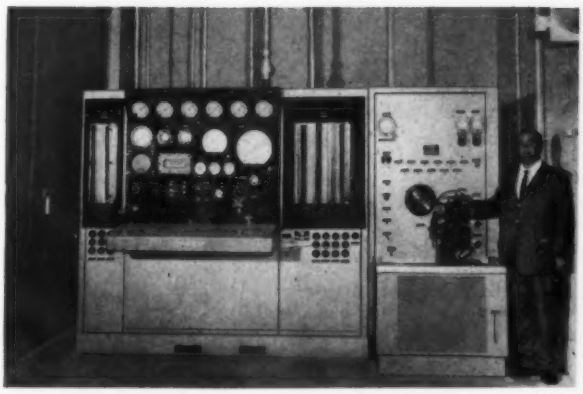
To expedite the flow of this "on the airport" business, Schusheim has devised a four-plan program of handling jet accessories to meet any airline's needs.

Plan A calls for a spares pool with each participating airline contributing spare units to a common pool administered and serviced by SMS. Plan B is the usual recondition and return system now widely used.

Plan C is a spares "loan" arrangement whereby SMS would send the spare unit needed to return a carrier's airplane to service. Plan D calls for a direct parts exchange between the airline and SMS.

Although these projects are all slanted at jets, Schusheim has built up an instrument and accessory parts inventory for piston transport support that could well serve carriers during the phase-out years of this equipment. He now stocks 2,000 instrument parts, 19,000 for accessories.

One of the newer developments at SMS is a complete aircraft supercharger test facility. Another is a special vibration and flow rig which Schusheim feels will cut down overhaul time in cleaning contaminated oil coolers to about 10 manhours.



New jet fuel control test stand, built for SMS by Greer Hydraulics, is demonstrated by president Schusheim.

The next big program at SMS, soon to get under way, represents an even bolder step into the jet age. Schusheim has formed a new division, SMS Jet International, Inc., and plans to install complete turbojet and turboprop engine test cell facilities at Idlewild at a cost exceeding $700,000.

FAA at Idlewild

Idlewild is by far FAA's biggest single activity outside of its Washington headquarters. It houses not only a $1 million, 150-ft. high control tower (leased to FAA for $1 per year), but an ARTC center and the headquarters for FAA's Region 1. It has a domestic and overseas communications station and a radar remoted from a USAF site 80 miles down the Jersey coast.

The tower and center combined are fitted with at least one of everything in the way of ATC tools, including the only ASDE (airport surface detection equipment) radar so far delivered by Airborne Instruments Laboratory, Inc.

Its latest addition is a bank of scan conversion radar scopes supplied by Intercontinental Electronics Corp. that give ATC sector controllers a radar target with a "tail" for easier monitoring.

FAA chief of facilities, R. M. Brown, estimates the total investment in equipment at Idlewild alone at $3.5 million. The inventory of equipment and supplies reads like a blue-book of U.S. electronics producers.

There are ground communications by Wilcox; recorders by Magnecord, but these are being changed to new Dictaphone equipment; long-range radar by GE; microwave link by Collins and ASR radar by Bendix Radio. Precision approach radar is by Gilfillan; approach lights by Sylvania; a new ATC computer by Remington Rand.

Checking 707 parts catalog is C. E. "Chuck" Linn, Boeing supervisor of jet parts store.

Even Shopping Centers for Jet Parts

Boeing jet store has been in operation since January 15. Now it has a neighbor next door, Douglas.

THE AIRLINES COULDN'T WAIT until Boeing Airplane Co. officially opened its 707 jet Spare Parts Store at New York's Idlewild Airport on January 15 of this year.

The day before, one of the 707 operators called for and got a replacement valve for one of its jets. The next day it was a window. Two flight cancellations avoided.

Since then, manager Charles E. "Chuck" Linn has been doing big business in on-the-spot sale of jet parts. And he has been able to fill 8 out of 10 requests.

Today the big customers are Pan American, American and TWA but eventually the list of 707 carriers operating into Idlewild will number about 15.

But even with business confined to three airlines, the Boeing store is averaging about eight to 10 sales a day. And although its prime purpose in life is to serve Idlewild, it already has filled orders in Los Angeles for Continental Air Lines and in Sydney, Australia for Qantas.

In all, the store has disbursed more than 430 individual parts varying from windows to a complete nose landing gear. Parts in inventory range in size from small ¼-inch bushings to a rudder weighing 1,880 lbs. and measuring 22 x 10 x 4 ft. Sale prices can vary from $1.50 for packaged small items to $28,000 for a major assembly.

The big advantage of the store is speed. An airline can pick up "over the counter" within 10 minutes a part that would take 10 to 12 hours, sometimes more, to get from Seattle. Boeing provides the fork lift and loading, the airline sends its own truck. For each sale, Boeing issues a three-copy sales order with all the necessary price and part number information, the carrier provides simply a confirming purchase order. No parts are accepted in exchange. Warranty claims, etc. are all handled directly with Renton.

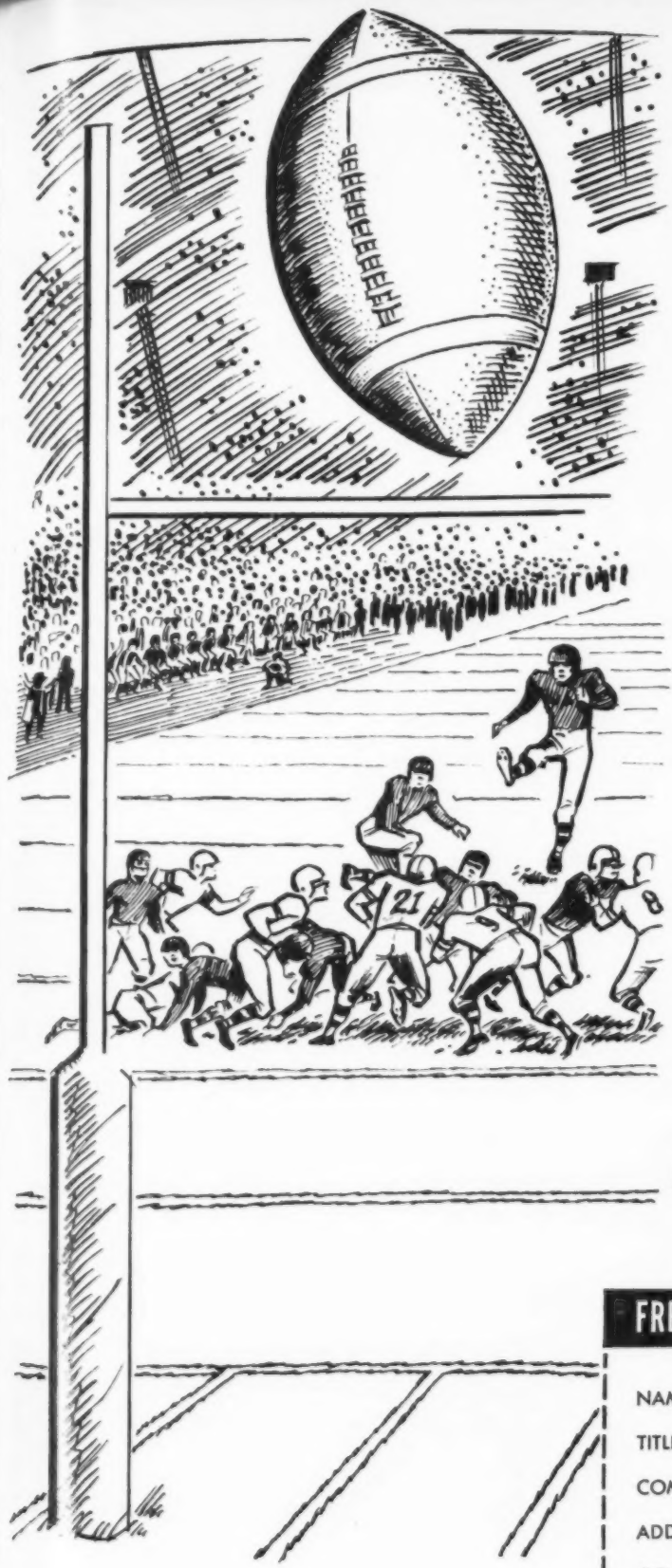
When Boeing launched the jet store, it was tabbed to carry some 4,000 items. This has since been upped to about 5,000 and eventually it might hit 8,000. The jet builder also hopes to interest some 25 major 707 suppliers in renting space in the store. Two have already jumped at the opportunity, AiResearch Mfg. Co. of Arizona and Ramo-Wooldridge Thompson Products Corp. AiResearch stocks 12 items in the Boeing store, Thompson has three.

Linn operates the store on an 8 a.m. to 1:30 a.m. basis five days a week but 24-hour service is available essentially on any day. During off hours on weekends, an airline uses a special night line; a stock specialist supplied by Allied Maintenance Corp. determines that the item is on hand, opens the warehouse and issues the part, regardless of the hour.

And Boeing's Transport Division, for whom the store was set up, isn't the only member of the Seattle firm's organization now participating in the venture. The company's Industrial Products Div., supplier of gas turbine starters for a number of airlines, is stocking some 500 spare items in the Idlewild store.

At Boeing's Idlewild parts store, Pan American truck takes delivery of equipment for jet support.

One of Idlewild's newest tenants is Douglas Aircraft Co. with its DC-8 "store" immediately adjacent to that of Boeing. Its facility will be operated by Allied Aviation Service Co., will include some 7,000 items (it now has 2,000) valued at more than $1 million.



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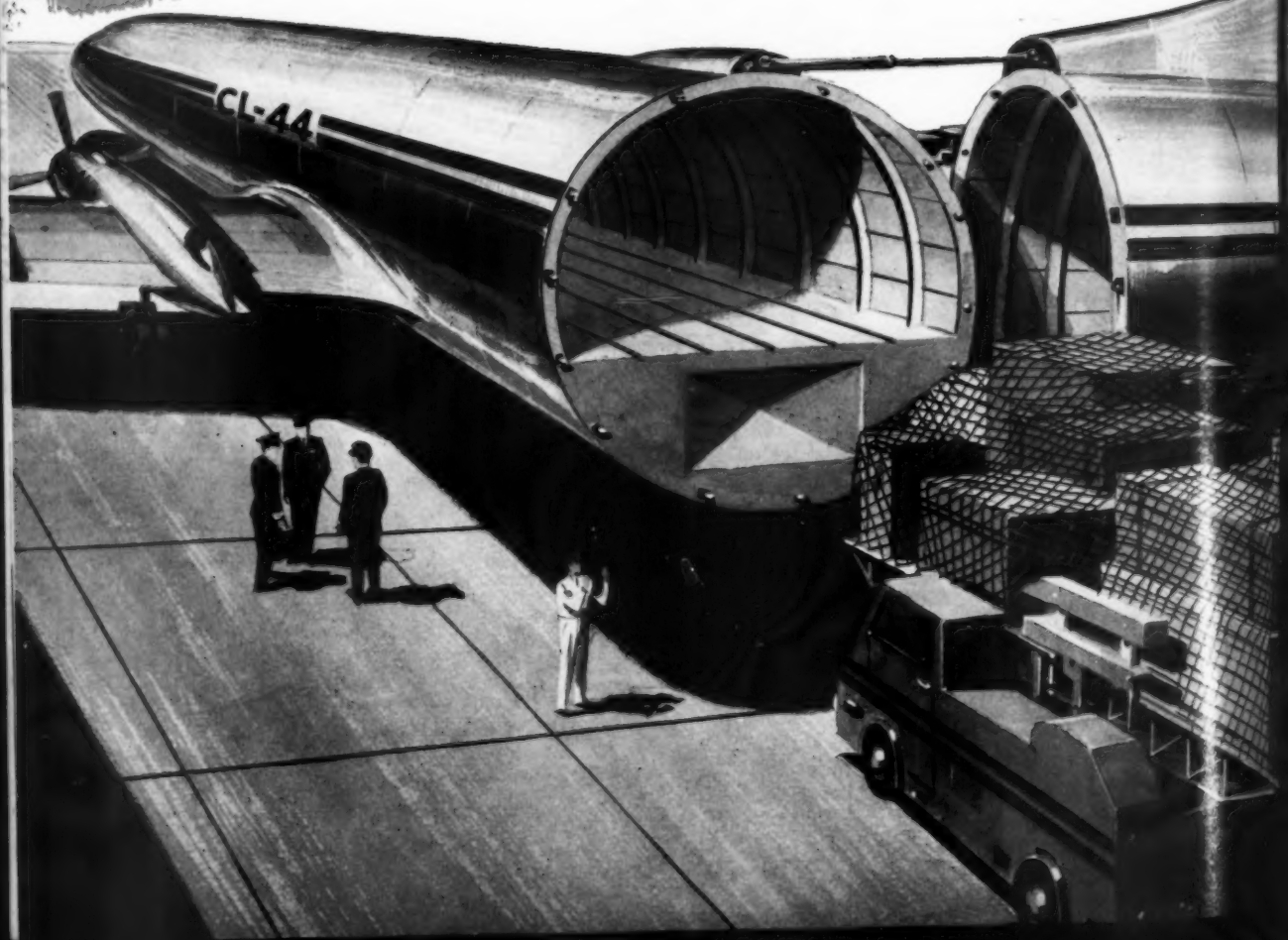

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British Independents, backed by billion dollar shipping interests, are ready to help. But major legislation is needed to cure current ills.

Why Britain Lags in Air Transport ...and How to Fix It

By L. C. HUNTING
Director, Hunting Aircraft Ltd.

FOR WELL OVER A HUNDRED YEARS Great Britain has been the pre-eminent sea carrier of the world. Today this pre-eminence is threatened not only by other seafaring nations but to an ever increasing degree by air transport.

How far or how quickly this process will go is probably not predictable. What is certain, however, is that the British nation must use its best endeavor to ensure that sea traffic which transfers to the air should come to British air carriers.

The record to date shows that British air transport is not expanding at the same rate as most of its competitors. ICAO figures show this clearly when British passenger/km figures over the last five available years are compared with three of her neighbors, Switzerland, Italy and France. The British figure is 70% up but the Swiss is 166%, the Italian 142% and the French 138% up.

In freight, there is the same gloomy story. The British ton/km figure is 68% up, but the comparable percentage increases for the other three are 245%, 143% and 120%, respectively. A way must therefore be found to reverse this trend. The instrument to achieve this end lies close at hand awaiting its chance—Britain's independent operators.

The Civil Aviation Acts which gave birth to the two national British carriers, BEA and BOAC, and which gave them their monopoly of scheduled services, were enacted in the light of conditions and premises which today are no longer relevant. There can be no one who would wish to see the corporations cast aside after all the efforts they have exerted and after all the public money which has been spent on them.

Nevertheless there is an ever increasing body of influential opinion which is seeking to get the best of both worlds by expanding the opportunities granted to the independents.

This opinion is supported by the fact that although as I have shown above, Britain is lagging behind in her air expansion rate, this is not the fault of the independents. For example, the Ministry of Transport and Civil Aviation figures show that the BOAC load short ton-miles increase last year was 8.3%, whereas the independents' figure was 19.7%. This indicates that by backing success—the independents—by giving them more opportunities, there would be a reasonable chance of catching up; for example, Swiss, Italian and French expansion rates mentioned earlier. At the moment the independents who together are restricted to only 6.5% of the total British effort have little effect on the over-all picture.

But this apart, surely no one believes that however good two great organizations are, they can be so invariably right and so alive to every opportunity that the country's air transport industry can hope to remain competitive if it is composed of them alone. There is a resurgent belief throughout the country in private enterprise, which is leading to the feeling that reliance upon two chosen and protected instruments cannot possibly produce the variety of endeavor and the clash of opinion which is the essence of progress, and which is essential in the face of world competition.

Moreover this line of thought leads to the conclusion that the manufacturing industry also could be disastrously weakened if there are only two big customers to give a lead; once again, however carefully and honestly they state their requirements is it natural to expect them to be right every time? As the chief executive of BEA has put it, "BEA is in the very unenviable position of being able to make or break the British aviation industry."

Politics must go

The first essential if progress is to be made is to get the air transport industry as far removed from politics as possible. No orderly development of effort or investment can be made if a change of government means a violent change of policy. The problem is a national one and ways must be found of encouraging those who are willing to help build the industry of the future on a much broader basis than exists today. There are those who feel that the corporations have sufficient to do in meeting foreign competition, let alone the threat from the independents, but the fact remains that Britain must live by invisible exports and the vast wealth of transport experience of the country's great shipping companies which is behind some of the leading independent air carriers is now allowed under existing legislation to help the struggle.

The size of the backing for Britain's leading independents through British shipping is perhaps worth stating to show that they have available the resources to take advantage of expansion opportunities when they come, as come they must. The biggest shipping company in the world—P.&O.

—have a controlling interest in British Air Services Ltd., who in turn control Silver City and Britavia. Hunting-Clan is owned equally by British & Commonwealth Shipping, second in capital resources only to P.&O., and the Hunting Group of shipping oil, survey and aviation companies.

The Airwork group (including Air Charter, Transair and Morton/Olley) has the Blue Star and Furness Withy shipping companies behind it. The Bibby Line has a big holding in Skyways. The assets employed by the British shipping companies which already have an interest in the independents are the equivalent of over one billion U.S. dollars.

Having sketched the background, what is the way ahead? There are, I think, logically two legislative moves. In the first place the monopoly of the corporations must be removed; not just to be replaced with another monopoly, this time private, but so that no monopoly exists—scheduled services would be run by license not by law.

From this it follows that there must be some legally constituted body capable of granting licenses.

In this context (though not, I hope, out of context) it was interesting to hear the Minister of Transport and Civil Aviation say at the last annual dinner of the British Independent Air Transport Association ". . . I wonder whether it is not possible to devise some kind of statutory authority which, without undue delay or excessive complexity, could, fairly well and efficiently, hold the balance between the different interests of the industry and under the sanction of licensing powers assist the industry as a whole . . ."

Such a body would have to be charged with fostering British air transport; if it held that there was need of two or more operators on one route then two or more could be licensed. In order to be able to function properly many matters such as bilateral control of capacity and "pooling" agreements for example would have to come within its aegis. By these means the British independents could play the part that some at least among them have shown themselves willing and able to perform.

Immediately, the most fruitful field for the independents may well lie in slashing fares as far as economically possible. Many of us believe that economy and not speed (which is to some extent incidental) is what the independents, by virtue of their lean overhead structure, have to offer. If newer and faster vehicles are going to cost more both initially and operationally which seems inevitable, then the only hope of broadening the market which is in everyone's interest is to cut fares and tariffs dramatically with the equipment at our disposal today.

That this is possible some of us have already shown in a recent pattern of applications for scheduled services over cabotage routes where fares sought were about half the present tourist level. Economic suicide? We cannot claim and do not want any subsidies (we are not even permitted to carry mail). If we were wrong we go out of business.

Just how far the independents are prepared to go in reducing fares can be illustrated by showing some of the proposed new fares.

	Hunting-Clan application	Present tourist	Present 1st class
London-Nairobi return ..	£100 ($280)	£234 ($655)	£362 ($1,014)
London-Hong Kong return	£245 ($686)	£416 ($1,165)	£605 ($1,694)
London-Kingston return .	£150 ($420)	£253 ($708)	£333 ($932)
London-Aden return	£107 ($300)	£218 ($610)	£304 ($851)

Another field which for much the same reason would seem to come naturally to the independents is freight. I am not amongst those who believe that we are on the verge of a spectacular breakthrough freightwise. Cargo will be gained kilo by hard won kilo, nevertheless over the years the expansion must gather momentum as we are able to lower freight rates and the advantages of air freight become more widely known.

I am not fearful about the independents' future, nor in the longer term the wider future of Britain's air transport industry, because I believe that progress along the lines I have tried to indicate is not only logical but inevitable.

West Coast Hustles with F-27

Equipment problems, strikes, zooming costs plagued this local. But the record shows it is licking them all—and the F-27 is its chief weapon.

By Wayne W. Parrish

WEST COAST AIRLINES is a local carrier that is busting out at the seams. It has headaches, indigestion, financial problems, impressive traffic growth, and a very bright future once all the ills can be doctored.

Some airline always has to pioneer with new aircraft. West Coast undertook to be first with the Fairchild F-27 last fall. Troubles there were aplenty, but the F-27 has proved to be an outstanding success.

Then along came some big route decisions. In just a month and a half up to September 15, WCA is adding 916 new route miles for a new total of 3,116, and ten new stops. Two new states have been added to the original three, with still another state—Montana—to come before long.

Added to all of this was a hefty increase in costs of all kinds that would have come anyway—pay increases, landing fee increases, and higher costs for supplies and parts. WCA had held the line for a long time. A break was over-

due. In the midst of F-27s and route expansion, WCA got hit with everything at once including a five-day mechanics strike early this year.

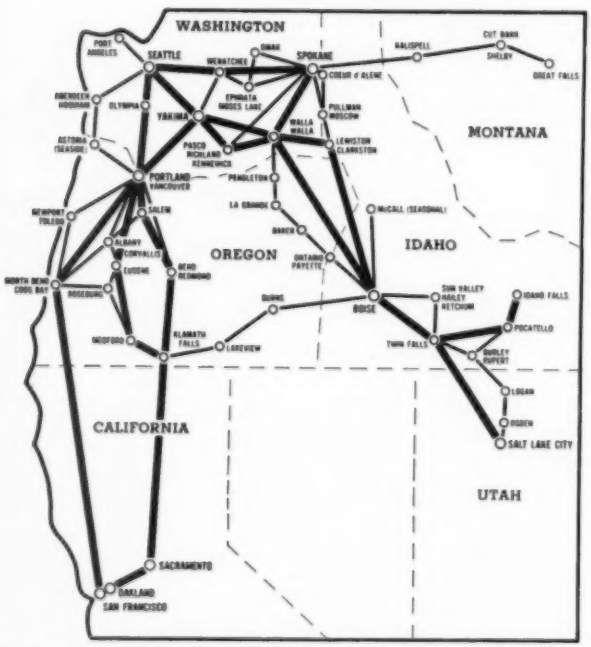
So WCA has applied to CAB for temporary subsidy help. For the year ended June 30, 1959, it needs $680,000 more subsidy and mail pay to break even than it would have needed had it not undertaken the F-27 service.

But far from being grim, the outlook is very good once the temporary headaches are cured. In fact WCA says by 1960 its break-even need will be lower than if it had retained nothing but DC-3s, and by 1961 it expects to accomplish the impressive feat of reducing the break-even need to the extent of $721,000. An improvement at the rate of $400,000 to $500,000 a year is indicated.

The remarkable thing about WCA is that it has become a big airline overnight with only about 50,000 square feet of space at Boeing Field, Seattle. It can have new facilities built, but these would cost considerable in annual rent. What it wants to do is to move maintenance and overhaul to Boise, Idaho, where state and city have offered ample Air National Guard facilities to WCA at very reasonable rent. But WCA says it can't move unless and until it gets a Boise to San Francisco route to connect up its coastal routes to enable it to route equipment to Boise for maintenance.

The real story at WCA is what the 40-passenger Rolls-Royce-powered pressurized Fairchild F-27 has done to and for traffic. Look at any chart or tabulation and the F-27 has generated much new business. Wherever the F-27 has replaced the DC-3, traffic is up a lot, anywhere from 30% to over 100% for comparable months the year before.

By the same token, new routes and skip-stop authority has now made the F-27 a real comer for WCA. Utilization had been low until recently, about 5 hours, with a fleet of four F-27s. Now with six of this type utilization will be close to 7 hours, with five in service and one spare. Skip-stop authority has boosted the average stage length from a low 78 miles to 124 and this will help materially in making better use of the F-27. WCA has 14 DC-3s remaining in service.



West Coast will be serving 43 airports for 56 certificated cities in five states as of Sept. 15. California points received service July 31, the Utah extension began Sept. 1, while Montana awaits a CAB final decision. Heavy lines show F-27 service, the light lines DC-3. Sun Valley service is awaiting airport improvements.

Talk to Ernie Code, vice president-planning and engineering, and you'll get nothing but praise for the F-27 airframe and engines. But he's gone through all the headaches (and costs) in the book for vendors' items. WCA found out that it had to service test much of the stuff that's hung onto an airframe and this set back WCA a lot in delays and dough. Virtually all of those problems are now overcome.

Items that had to be modified or changed or fixed included fuel boost pumps, AC alternators, flap motors and other equipment, nose wheel assembly, nose wheel steering, wheels and brakes, flap actuating mechanisms, and deteriorating fiberglass.

There were also five so-called "crash starts" caused by nonprotected electrical circuitry in the starting feature of the Rolls-Royce engines. A completely satisfactory fix has been obtained, but in the meantime five engines had to be removed and shipped to the Rolls-Royce agency at Montreal. This increased costs during the break-in period.

Even the cooling system had to be removed and modified. It's all fixed now, but WCA had to go through part of the summer without the nice cooling which had been promised to customers at very hot airports in eastern Washington and Oregon, and in Idaho.

All of these troubles in no way dampened WCA's enthusiasm for the F-27, which is now as trouble-proof as airplanes come. Men like Code only wish the components and parts people had done a lot more service testing of their equipment before shipping it for use on the F-27. One unit made by a U.S. manufacturer had to be replaced by a British unit, although the U.S. builder has now completed a satisfactory fix.

New equipment expensive

No doubt about it, introducing new equipment is an expensive venture for a small carrier, and that is why WCA's cost figures are quite a distortion from what it feels the situation will be from now on.

For example, the F-27, with only 66.6% more seats than the DC-3 (40 vs. 24), has averaged 66% more traffic per mile during the nine months up to June 30, 1959, than the DC-3s averaged during the nine months ended June 30, 1958.

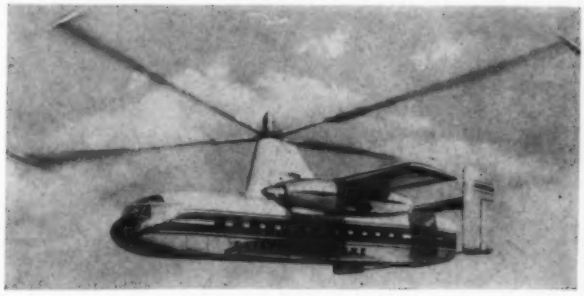
Meantime new Rolls-Royce revisions and FAA regulations have eased up payload penalties which held back WCA earlier this year. The Rolls-Royce revision alone permitted WCA to add up to eight more passengers per flight in high-altitude and high-temperature conditions. FAA eased up considerably, too, so that the F-27 is no longer penalized in the eastern sectors of its route system as it was for awhile.

California was invaded by WCA on July 31 with new services from its Oregon points to Sacramento, Oakland and San Francisco. Service was also started July 31 to Newport-Toledo, Oregon, and on September 1 service was to begin into another new state—Utah—with a terminus at Salt Lake City via Logan and Ogden. On the same date service was to start at Omak, Washington, and on September 15 new service is scheduled for Burns and Lakeview, Oregon, on a new route between Boise and Klamath Falls. When CAB issues a final decision, the WCA system will extend eastwards from Spokane to Kalispell, Cut Bank-Shelby, and Great Falls, Montana.

WCA is one of two remaining contestants (Northwest being the other) for an international route between Spokane and Calgary, Alberta. Hearings were recently completed. As of September 15 WCA will be serving 43 airports for 56 certificated cities.

What Tynes Will Do for Rotodyne

5,000 hp Rolls-Royce engine will boost Rotodyne to 50,000 lbs. gross, 17,000 above that of Eland-powered prototype.



By ANTHONY VANDYK

THE FAIREY ROTODYNE may well become a standard transport vehicle on both sides of the Atlantic as a result of its adoption by New York Airways and British European Airways.

Similar in configuration but very different from the 1950 20-seat design and the present 40/48-seat prototype, the production Rotodyne will carry up to 65 passengers and will have a maximum range of 650 miles. For stages such as New York-Washington and London-Paris it will be able to carry 57 passengers at over 200 mph with a break-even load factor well below 50%.

The development program for the Rotodyne is likely to result in cruising speeds close to 250 mph without changing the basic configuration. The main difference between the prototype Rotodyne and the production model is in the powerplant. The present aircraft uses two 2,800-hp Napier Elands.

This rating is insufficient for the larger model required by New York Airways and British European Airways and no development of the Eland to a substantially higher power is planned. Hence Fairey Aviation had to look for another engine and decided to take the 5,000-hp Rolls-Royce Tyne.

This choice pleased BEA since the airline had already ordered the Tyne-powered Vickers Vanguard. The main problem in re-engining the Rotodyne will be in the gearing and the manufacture of the auxiliary compressor. Fairey is hopeful that Napier's experience in the compressor field and its many years' association with the Rotodyne project will be utilized by Rolls-Royce to adapt the Tyne to the Fairey VTOL aircraft.

The production Rotodyne will be substantially bigger than the Eland-powered prototype—grossing 50,000 lbs. instead of 33,000 lbs.; rotor diameter will be 104 ft. instead of 90 ft.; fuselage will be 64 ft. 6 in. long instead of 58 ft. 8 in.; and the over-all height will go up from 22 ft. 2 in. to 23 ft. 2 in.

Most of the Rotodyne development flight test program will be carried out by the present Eland-powered prototype. The first Tyne-powered model is not scheduled to fly until the fall of 1961 while the delivery of the first production aircraft—to British European Airways—is scheduled for 1963. BEA's program calls for an order for six Rotodynes plus an option on 14 more.

New York Airways is acquiring five Rotodynes with the first scheduled for delivery in the early spring of 1964. It has also taken an option on 15 more. Another North American customer is Canada's Okanagan Helicopters which plans to buy one aircraft.

In its North American sales Fairey is aided considerably by having its own subsidiary company in Canada and Kaman Aircraft Corp. of Bloomingfield, Conn. as its U.S. sales and servicing agent. Kaman is also licensed to build the Rotodyne and probably will do so if current interest of the U.S. armed forces develops into a production order.

In Europe the military potential of the Rotodyne has been realized by the British Army and an order is currently under negotiation. The aircraft would be operated by the Royal Air Force for the Army.

As a flying crane the military Rotodyne can carry loads of close to 25,000 lbs. If necessary the Rotodyne may be overloaded by up to 5,000 lbs.

While military prospects are encouraging, Fairey salesmen are particularly optimistic about the rapidly rising airline interest in the Rotodyne.

One problem on dscussing the Rotodyne with commercial operators has been the establishment of accurate cost data since neither the ATA nor the SBAC have formulas applicable to this very special transport vehicle. Studies for the Tyne-powered Rotodyne indicate that the aircraft is at its most economic over sectors of 200-250 miles (New York-Washington and London-Paris) and will have a direct operating cost of under 3¢ per mile.

While the Fairey and Kaman salesmen beat the bushes for new customers for the $1,500,000 aircraft, the prototype Rotodyne continues to accumulate flying hours. By mid-July it had logged 70 hours including 230 transitions. These transitions between tipjet-powered and autogyro flight have proved simple and have on many occasions been carried out at altitudes as low as 200 ft. and under instrument conditions. Fairey is particularly pleased that film and trace recordings have shown fatigue stresses in the head and blades to be low. This, combined with all-steel construction, assures long component lives.

How the Rotodyne Works

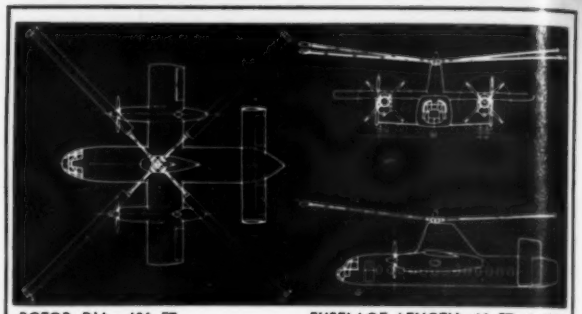
The Rotodyne is basically a convertiplane. The powerplant, comprising two turboprop engines, performs two functions. For takeoff and landings the engines supply compressed air to kerosene-burning pressure jets at the rotor blade tips. For forward flight all the engine power is applied to the propellers, lift being provided by the autorotating rotor and the conventional wing.

Fairey Aviation from the start has tried to make the Rotodyne, in the words of G. S. Hislop, the company's chief engineer (aircraft), "an economic all-weather VTOL transport aircraft" by employing three main engineering features: (1) a rotor propulsion system; (2) the use of a lifting wing to offload the rotor; and (3) the use of propellers for forward thrust.

The tipjet propulsion system, although eliminating the heavy, complicated and costly transmission system, tends to be heavy on fuel consumption. But the main disadvantage is the noise it causes at the critical moments of takeoff and landing. For a transport vehicle planned to operate in and out of city centers this high noise level feature has been a real problem. In fact, many airline officials who heard the Rotodyne prototype during its initial tests late in 1957 shook their heads.

However, Fairey was not discouraged because it knew that the problem was there and had been working for many years on solutions. Several designs of silencer for the pressure jet unit were tested and in August 1958 the Rotodyne was equipped with the most successful which gave an attenuation of 4 decibels with 5 to 6 decibel suppression in the mid-frequencies.

Immediate development of this design as a result of flight experience is likely to result in 6 decibel attenuation overall. Meanwhile a 10 decibel suppressor is being developed which will cut the mid-frequencies by about 15 decibels. Further improvements are being studied and, by the time the Rotodyne enters scheduled service in 1963, Fairey officials are confident that its noise level in vertical flight will be acceptably low. In forward flight there is no problem—the Rotodyne is quieter than a Viscount.



ROTOR DIA.—104 FT. FUSELAGE LENGTH—64 FT. 6 IN.
WING SPAN—56 FT. 6 IN. OVERALL HEIGHT—23 FT. 2 IN.
FLOOR HEIGHT ABOVE GROUND—3 FT. 5 IN.
ROTOR POWER UNITS—4 X FAIREY PRESSURE JET UNITS
PROPELLERS—2 X DE HAVILLAND 14 FT. 6 IN. DIA.

The excellent results of the flight test program, the acceptance of the aircraft by New York Airways and British European Airways and the fact that it is unique in its field make the prospects for the Rotodyne seem extremely bright.

Says Fairey's G. S. Hislop, "The Rotodyne, as an economic VTOL aircraft, with adequate performance standards with an engine failed, *and* a cruising speed of 220 knots, with all-weather capabilities, is a vehicle which no operator, civil or military, scheduled or bush, can afford to ignore."

IAL Activities Span the Globe

G. R. Scott-Farnie, operations manager of International Aeradio from its start in 1947, became general manager in '53 and took over the reins as managing director in January of 1958. A career banker at the start, he became controller for Wales of the Royal Air Force Civilian Wireless Reserve. During World War II he served as group captain on special signals.

• *What is International Aeradio Ltd.?*

It is an organization owned by a number of major international airlines with the primary purpose of installing, operating and maintaining aviation telecommunications and radio aids to navigation. Since its formation in 1947 IAL has operated, maintained, and/or installed such facilities in 153 locations in 40 countries. IAL's activities are divided into three main divisions: operations, engineering and printing/publishing.

• *Which are the airlines that own IAL?*

The main shareholders are BOAC and British European Airways but the following also have shareholdings: Air France, Air-India International, Airwork, Alitalia, Ansett-ANA, Hunting-Clan, KLM, Middle East Airlines, Pan American, Qantas, SAS, Skyways, Swissair, Sabena and TWA. The only non-airline shareholder is Aeronautical Radio Inc. (Arinc).

• *What is the difference between IAL and Arinc?*

Generally speaking, Arinc confines itself to communications on behalf of the airlines mainly in the USA whereas IAL goes into all sorts of other work anywhere in the world. For example, IAL puts out the Aerad Flight Guide which is largely done by Jepperson in the United States. The IAL engineering division does development work, systems engineering and ground station installation.

IAL also operates navigational services, air traffic control services, meteorological services, and fire and crash services in various parts of the world. In fact, IAL provides a complete airport service or any part of that service including even the design of a complete airport.

• *What is the dollar volume of your business?*

At the present time our turnover is about $6 million a year. Part of our revenue comes from subsidiary companies —we have them in Trinidad, Pakistan, Singapore, Libya and the Sudan together with an associate company in East Africa. Our Caribbean subsidiary is particularly important, providing Aeradio facilities for all airlines operating through the British Caribbean area.

At the moment we have a very elaborate program in the Caribbean which will provide an aeronautical communications system on VHF with radio, teletype and telephony, second to none in the world. The program will cost close to $1 million and it should be completed late this year.

• *How do you feel about user charges?*

In the Caribbean all the facilities we provide are entirely run on a user charge basis. The airlines seem to accept this system—they pay only for the use of the facilities which

they themselves requested "their" company to provide. They are paying for no frills.

• *Why are most of the world's aviation authorities so slow in buying equipment for use in the jet age?*

Dollars and cents. The cost of providing facilities at terminal areas and en route stations is high in proportion to the benefit that the country concerned gets out of the air traffic passing through its territory. This is one of the most serious problems blocking the really safe development of aviation throughout the world.

Malta is a very good example. Located in the middle of the Mediterranean, it is a very necessary flight information/coordination center. The cost of providing these services in Malta as far as the Maltese Government is concerned is exorbitant. By far the majority of the aircraft using these facilities overfly Malta. Therefore the Maltese cannot get any benefit from such aircraft. Nonetheless, the services must be provided.

• *How do you feel about communications in the jet age?*

There is a great need throughout the world for an improvement in "point to point" communications. When the jets are in full operation, it will be impossible to tolerate the delays which are at present being experienced. Radio teletype is certainly the first development which is going on and it must be speeded up. IAL has studied all problems relating to the jet age. We know what is required. We can supply all necessary personnel and equipment.

• *What schools do you run?*

We have what I believe is the only commercially operated air traffic control school in the world. This is located at Southall near London. We also have training schools in Lebanon and in Libya.

• *What is your printing and publishing division?*

Our main production involves the Aerad Flight Guide. This publication, covering the whole world, lists radio and navigational facilities for air navigation and for airfield approach and let down procedures, together with a host of other information of use to aircrew and aircraft operators. Last year 39,650 copies were supplied to over 500 subscribers, 95% of which were actual aircraft operators.

• *What special types of equipment have IAL developed?*

Our engineering division has developed a series of aeradio control consoles. These consoles are now in use in 48 countries. A synthetic trainer for air traffic controllers has also been developed and much work has been done on the development of Torn-Tape Relay Centre techniques.

• *Do you do any consultancy work?*

Yes, we are currently consultants to 25 governments, administrations, companies in the electronic industry, and civil engineers engaged in planning new airports or redesigning old ones.

For example, we were hired by the Director General of Civil Aviation in Portugal as consultants for the preparation of plans and procedures to coordinate the civil and military air traffic in the Lisbon terminal area. Another consultancy contract involved a seven-week survey of Panair do Brasil's communications system.

• *What do you consider is the future of IAL?*

With the development and spread of aviation and the growing reliance on electronic aids we believe we have an increasingly important job to perform, not only in the provision and operation of technical equipment but in the training of technicians and specialists.

We are ready to go anywhere and do anything in the cause of aviation or communications generally, and we believe that the approach and enthusiasm of our members will continue to encourage the various authorities concerned to call on our services when they are in need.

Aircraft Exchange Suggests:

Survey The World Transport Market

THE PROBLEM of surplus piston-engine transport airplanes has been called "a billion-dollar headache."

The Aircraft Exchange, which recently moved into new New York quarters at 60 East 42nd Street, believes it has "the aspirin for the headache."

It is proposing to both industry and government a major worldwide study of the requirements of other countries for used aircraft. Robert I. Helliesen, president, reports a very ready acceptance of the proposal which he believes could lead to practical solutions toward moving used aircraft off the present glutted market.

Helliesen has explained his proposal this way:

"Two major transportation problems exist today, each of which may be made to provide the solution to the other.

"The first problem is that more than two-thirds of the countries of the world are suffering from inadequate and/or inefficient transportation services. This is largely due to the fact that these countries in the past have been unable to meet the former high cost of acquiring equipment which is economical, efficient and adequate to meet current transportation needs and stimulate future demand for services.

"The second problem concerns the disposal of hundreds of piston-engine commercial aircraft, which will shortly become surplus to airline companies taking deliveries of pure jet and turboprop equipment.

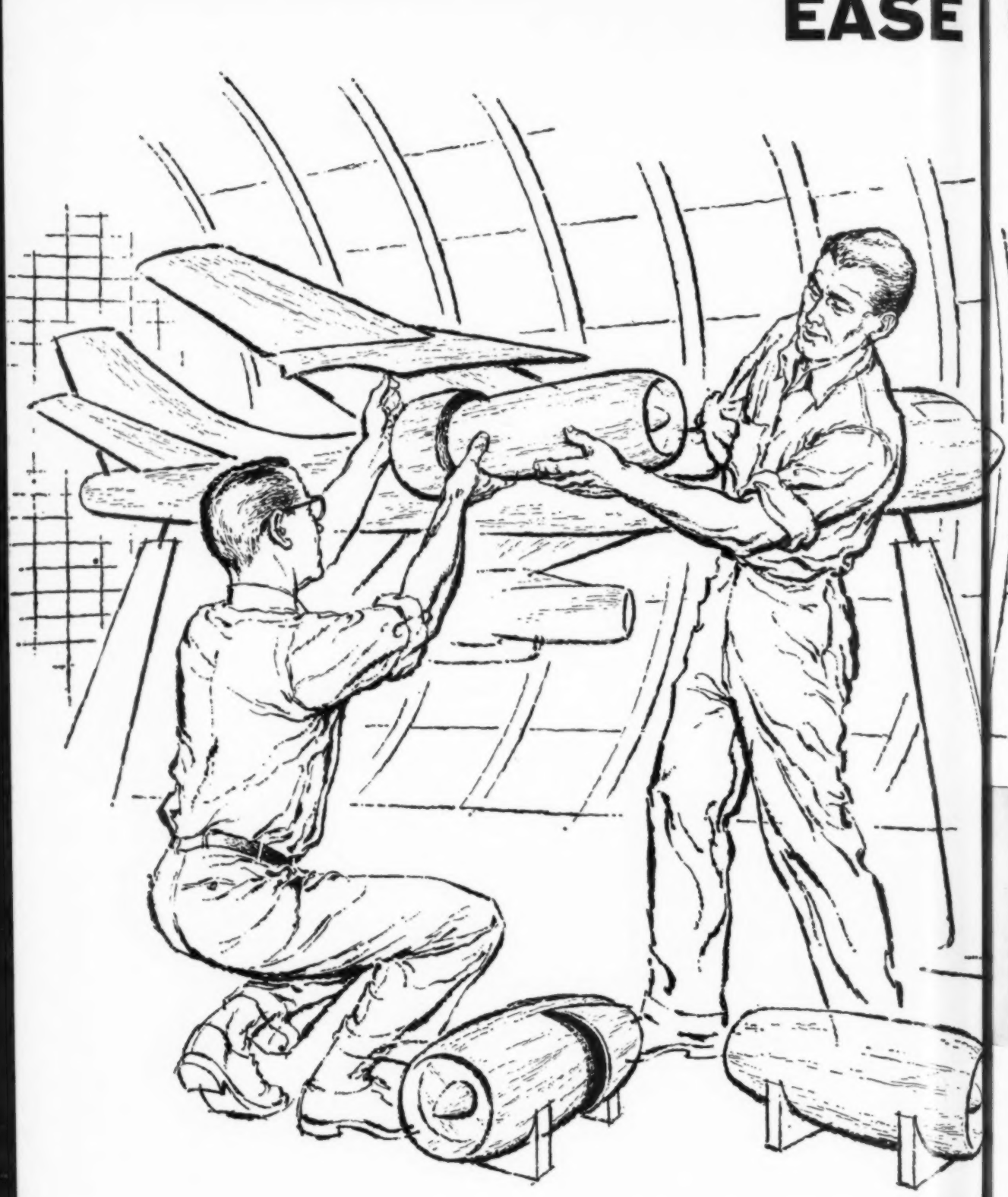
"There is an obvious relationship between these two problems in that one concerns potential buyers and the other potential sellers of the same commodity—transportation equipment. We believe that the means to bring potential buyers and sellers together on realistic terms beneficial to both can best be found in a comparative study of the needs of countries suffering from a lack of transportation facilities."

Mr. Helliesen and his associates (who include such experienced international men as Charles Biondi, J. Derek Ahlers and Byron Sherrill) believe that teams studying every country of the world would result in a collection of data of much usefulness and would uncover many outlets for used equipment not now known.

A number of manufacturing and air transport firms have already pledged financial support to the project. A number of government officials have expressed interest.

General Electric puts the

EASE



fan AFT for
OF INSTALLATION

Because the fan is aft on General Electric turbofan engines, airframe designers have a choice of several efficient installation arrangements. The aft fan engine lends itself readily to a combined engine-fan inlet, cheek inlet aft for fan air, or full annular inlet aft for fan air. All three types allow excellent accessibility to the engine, and can be used with pod or internal fuselage installations.

The main engine portion of the aft turbofan uses operationally proven hardware designs. The same excellent characteristics of General Electric's other high-performance variable stator engines, like the J79 and CJ-805, are retained in the aft fan engine. The basic engine's high capability for handling inlet distortion is actually exceeded by that of the aft fan.

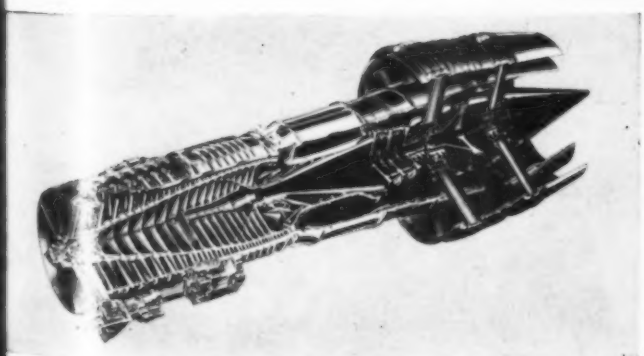
G-E aft fan engines use thoroughly proven accessory drive system arrangements. Their low silhouette and in-line arrangement minimize frontal area and assure an efficient flow of fan inlet air.

Thrust reversal of aft fan engines is simplified by the aft fan's single-plane exhaust. A single reverser handles both main engine and fan exhaust streams. Counter-rotation of fan rotor and the main rotor decreases gyroscopic loadings, cutting the required weight of the aircraft mounting structure. Proximity of engine exhaust makes a heavy, complex anti-icing system unnecessary, further reducing installed weight. The aft fan engine's low noise level minimizes acoustic fatigue in surrounding aircraft parts, substantially adding to aircraft durability, and decreasing weight.

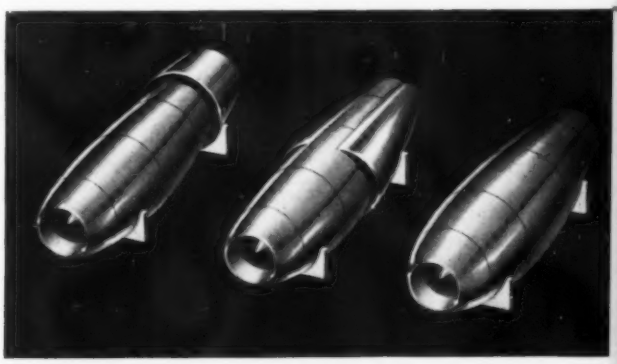
When the fan is aft, mechanical simplicity, proven hardware, and nacelle flexibility mean unexcelled ease of turbofan installation. General Electric Co., Cincinnati 15, Ohio. 235-38

Progress Is Our Most Important Product

GENERAL ELECTRIC



General Electric turbofan engines are more reliable because addition of the aft fan leaves the main engine unchanged. Main engine maturity is retained —lube system, shaft and bearing loads, and control system have accumulated four years of flight experience on military and commercial aircraft.



Aft fan engine nacelle designs may use separate inlets for main and fan air. Two typical examples of this design are the aft annular inlet, and the cheek-type inlet. An alternate design is the combined engine-fan inlet, taking aboard both main engine and fan air at the forward end.

Braniff Leads the Trunks in June "On Time" Record

For years the phrase "on time" has been the first entry in Braniff Airways' operations handbook and the result of this emphasis shows up in the record.

For the first two months carriers have been reporting schedule performance to CAB, Braniff has been among the top runners. In June it ranked first with 80.1% of its flights on time within 15 mins. In May it ranked third.

Braniff's 80.1% compares with an industry average of 66.3% for 10 carriers filing with CAB. TWA's report was not in at deadline. The locals outdid the trunks average by some 7.2% although their flights affected by the report requirement (nonstops and one-stops) represented only 11% of those for the trunks.

Jet Record No Better

In jet operations, American's 707s operated 27.3% on time with 51.8% running 30 or more mins. late. Continental's was 42.6% on time.

In Lockheed Electra service, AA registered 79.6%, an outstanding performance for a new aircraft. Eastern's was 63.0% and National's 33.8% although the latter involved only 83 flights.

Northwest Airlines appears in *AIRLIFT's* summary for the first time with a 55.2% on time record, tie with Capital for next to lowest performance. National, the low on time operator in May at 56%, again ranked last with 48.3% of its flights arriving within the 15-min. tolerance.

Among the locals, Central Airlines' 92.0% led the industry followed closely by West Coast's 89.2% and Ozark's 88.3%. Unlike the performance of the trunks, there was no consistent pattern between May and June, with only Ozark appearing in the top three for both periods. In May Ozark was No. 1 followed by Lake Central and Bonanza.

The reports show a wide variation in the number of nonstop and one-stop flights carriers operate. Trunks range from 5,816 for American to only 741 for National, locals from 1,184 by Mohawk to only 29 by Piedmont.

ON TIME PERFORMANCE—JUNE 1959

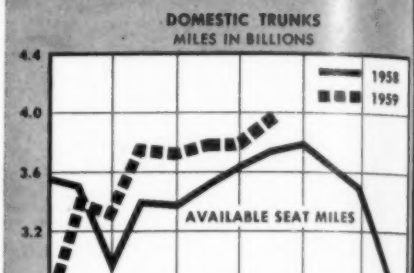
On-time Dependability of Trips at Termination as Reported to CAB
Nonstop and One Stop Flights Only

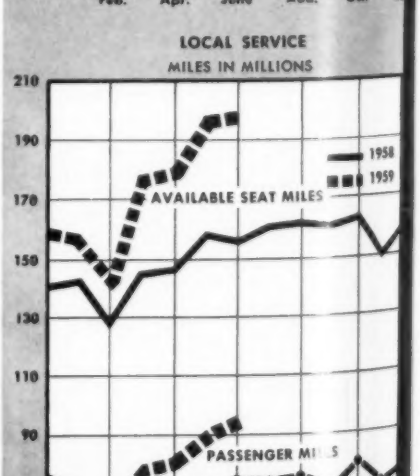
	Rank	On time to 15 min. late	On time to 5 min. late	6-15 min. late	16-30 min. late	Over 30 min. late	Total trips reported
TRUNKS							
American	3	71.7%	54.1%	17.6%	12.7%	15.6%	5,816
Braniff	1	80.1	59.6	20.5	11.0	8.9	1,696
Capital	9	55.2	30.3	24.9	23.5	21.3	4,700
Continental	5	68.2	46.6	21.6	18.7	13.1	1,022
Delta	7	63.6	34.6	29.0	21.3	15.1	1,659
Eastern	6	66.8	43.6	23.2	16.8	16.4	5,498
National	10	48.3	30.6	17.7	20.3	31.4	741
Northeast	8	55.7	35.6	20.1	17.9	26.4	2,810
Northwest	9	55.2	34.5	20.7	17.4	27.4	1,503
TWA		N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
United	2	77.7	56.7	21.0	10.9	11.4	4,412
Western	4	71.5	45.0	26.5	16.6	11.9	1,068
Totals		66.3%	44.5%	21.8%	16.4%	17.3%	30,925
LOCALS							
Allegheny	11	59.1%	37.2%	21.9%	18.6%	22.3%	269
Bonanza	9	71.5	60.4	11.1	10.7	17.8	325
Central	1	92.0	82.0	10.0	7.0	1.0	100
Frontier	4	82.7	66.2	16.5	10.7	6.6	242
Lake Central	6	78.3	52.2	26.1	10.1	11.6	138
North Central		N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Mohawk	10	60.8	37.0	23.8	17.9	21.3	1,184
Ozark	3	88.3	53.3	35.0	10.6	1.1	649
Pacific	5	81.4	55.6	25.8	9.3	9.3	205
Southern	8	73.1	38.5	34.6	17.6	9.3	416
West Coast	2	89.2	78.0	11.2	5.4	5.4	242
Piedmont	7	75.8	48.2	27.6	17.3	6.9	29
Totals		73.5%	49.3%	24.2%	13.8%	12.7%	3,799
BOEING 707							
American	1	27.3%	17.0%	10.3%	20.9%	51.8%	598
Continental	2	30.1	12.5	17.6	43.7	26.2	80
TWA		N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Totals		27.7%	16.5%	11.2%	23.5%	48.8%	678
LOCKHEED ELECTRA							
American	1	79.6%	63.0%	16.6%	9.4%	11.0%	843
Eastern	2	63.0	42.3	20.7	16.7	20.3	993
National	3	33.8	14.5	19.3	25.3	40.9	83
Totals		69.1%	50.3%	18.8%	13.8%	17.1%	1,919

NA—Not available. Carriers failed to report by deadline.
Local airlines not shown failed to report by deadline.

HOW'S TRAFFIC—

Among U.S. Airlines





U.S. Airline Traffic for June 1959 vs. 1958

This complete summary compiled by AIRLIFT Magazine from Official CAB Data

	Revenue Passengers (000)			Revenue Passenger Miles (000)			Total Ton-Miles Rev. Traffic			% Available Ton-Miles Used	
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958
DOMESTIC											
American	710	667	6.4	541,558	477,444	13.4	63,179,285	55,813,728	13.2	66.6	59.5
Braniff	177	172	2.9	80,425	76,002	5.8	8,917,969	8,284,481	7.6	51.7	49.3
Capital	355	349	1.7	145,290	140,422	3.5	15,039,318	14,613,980	2.9	54.8	58.1
Continental	101	74	36.5	60,631	37,579	61.3	6,159,333	3,912,375	57.4	54.7	40.5
Delta	262	227	15.4	132,400	113,191	16.9	14,627,653	12,483,610	17.2	53.9	53.4
Eastern	724	649	11.6	384,725	347,853	10.6	39,960,237	35,883,405	11.4	43.5	48.3
National	135	111	21.6	80,077	65,511	22.2	8,566,078	7,084,186	20.9	44.5	44.2
Northeast	109	84	29.8	41,881	30,272	38.3	4,230,640	3,067,082	37.9	40.8	36.3
Northwest	175	148	18.2	137,245	115,381	18.9	15,203,244	12,517,996	21.5	54.8	51.7
Trans World	477	423	12.8	441,389	370,073	19.3	46,703,089	39,195,038	19.2	67.5	61.4
United	674	623	8.2	498,650	483,535	3.1	58,191,346	54,413,562	6.9	65.6	59.7
Western*	135	56	141.1	77,624	30,976	150.6	8,152,204	3,211,802	153.8	52.5	42.3
TOTALS	4,034	3,583	12.6	2,621,895	2,288,239	14.6	288,930,396	250,481,245	15.3	57.7	54.5
INTERNATIONAL											
American	10	10	.....	9,573	8,584	11.5	1,244,382	1,199,502	3.7	64.0	50.4
Braniff	4	4	.....	8,156	8,011	1.8	1,037,933	964,965	7.6	53.2	47.0
Delta	4	4	.....	6,071	6,173	— 1.6	735,451	724,508	1.5	49.4	48.7
Eastern, Overseas	38	38	.....	56,346	51,242	9.9	5,984,326	5,465,858	9.5	72.2	58.8
San Juan	30	26	15.4	46,467	39,707	17.0	4,889,589	4,212,062	16.1	81.7	62.5
Bermuda	4	8	—50.0	3,488	6,249	—44.2	363,901	642,814	—43.4	39.8	51.1
Mexico	4	4	.....	6,391	5,286	20.9	730,836	610,982	19.6	52.5	47.0
National	7	7	.....	4,548	4,822	— 5.7	541,044	576,782	6.2	50.2	49.0
Northwest	21	15	40.0	39,096	34,571	13.1	6,281,322	5,338,557	17.7	67.8	67.7
Hawaiian	3	2	50.0	7,536	5,275	43.8	834,884	588,767	41.8	75.5	75.5
Panagra	10	10	.....	14,277	11,908	19.9	2,077,745	1,752,268	18.6	57.5	51.7
Pan American, System	274	247	10.9	448,803	388,305	15.6	57,704,907	49,483,243	16.6	68.9	64.3
Latin America	115	98	17.3	133,565	113,175	18.0	17,179,463	15,098,350	13.8	66.9	64.2
Atlantic	123	120	2.5	189,712	179,983	5.4	23,987,382	21,917,542	9.4	66.6	60.4
Pacific	30	24	25.0	119,294	88,684	34.5	15,638,671	11,638,081	34.4	75.6	74.0
PDX/SEA-HON.	2	1	100.0	5,833	3,765	54.9	641,601	427,070	50.2	65.2	52.4
Alaska	5	5	.....	6,232	6,463	— 3.6	899,391	829,270	8.5	64.8	58.5
Trans Caribbean	.....	8	.....	.....	16,181	.....	.....	1,444,652	.....	.....	81.1
Trans World	40	35	14.3	126,572	100,520	25.9	15,671,171	11,951,894	31.1	71.4	54.4
United	14	12	16.7	34,956	29,068	20.3	3,864,968	3,192,309	21.1	80.4	67.9
Western	4	1	300.0	6,677	1,091	512.0	750,938	121,561	517.7	64.5	27.2
TOTALS	426	391	8.9	755,075	660,476	14.3	95,894,187	82,216,099	16.6	68.8	61.6
LOCAL SERVICE											
Allegheny	56	45	24.4	9,863	7,863	25.4	1,002,433	798,647	25.5	52.3	48.9
Bonanza	20	15	33.3	4,820	3,441	40.1	480,097	343,581	39.7	43.9	42.9
Central	15	12	25.0	2,797	2,246	24.5	290,722	229,883	26.5	34.6	30.7
Frontier	26	21	23.8	6,782	5,538	22.5	757,153	609,615	24.2	51.7	58.2
Lake Central	20	15	33.3	3,250	2,347	38.5	333,587	240,760	38.6	49.3	40.3
Mohawk	51	40	27.5	10,078	7,582	32.9	1,003,398	759,052	32.2	57.6	51.8
North Central	89	68	30.9	16,088	11,873	35.5	1,663,372	1,198,583	38.8	46.9	48.9
Ozark	51	36	41.7	8,890	6,114	45.4	917,766	621,135	47.8	48.9	47.7
Pacific	41	33	24.2	9,127	7,352	24.1	896,971	723,103	24.0	57.5	51.6
Piedmont	46	37	24.3	9,725	7,863	23.7	981,267	793,434	23.7	48.1	55.1
Southern	23	18	27.8	4,015	3,341	20.2	419,437	341,885	22.7	40.5	38.2
Trans-Texas	24	19	26.3	5,751	4,351	32.2	610,534	463,582	31.7	43.3	38.5
West Coast	29	22	31.8	5,546	4,066	36.4	546,119	404,552	35.0	51.5	47.4
TOTALS	491	381	28.9	96,732	73,977	30.8	9,902,856	7,527,812	31.5	48.9	47.5
HELICOPTERS											
Chicago	20	9	122.2	367	164	123.8	36,415	17,028	113.85	51.4	28.2
Los Angeles	4	3	33.3	153	124	23.4	21,789	17,984	21.2	65.8	62.7
New York	13	9	44.4	240	159	50.9	26,204	17,645	48.5	55.2	47.1
TOTALS	37	21	76.2	760	447	70.0	84,408	52,657	60.3	55.2	41.6
TERRITORIAL											
Caribair	24	18	33.3	1,691	1,312	28.9	183,805	137,290	33.9	69.4	60.2
Hawaiian	44	40	10.0	14,885	6,061	145.6	1,481,072	628,821	135.5	74.1	57.4
Trans Pacific	29	18	61.1	3,999	2,442	63.8	331,447	203,686	62.7	43.2	63.7
TOTALS	97	76	27.6	20,575	9,815	109.6	1,996,324	969,797	105.8	63.9	59.0
ALASKA											
Alaska	11	6	83.3	9,860	3,421	188.2	1,783,828	678,944	162.7	62.4	44.4
Alaska Coastal	6	6	.....	688	539	27.6	78,156	63,716	22.7	59.9	61.2
Cordova	NA	1	.....	NA	169	.....	NA	37,575	NA	NA	44.2
Ellis	6	6	.....	363	321	13.1	42,688	37,701	13.2	61.1	65.4
Nor. Consolidated	3	2	50.0	1,164	744	56.5	249,804	174,322	43.3	63.3	61.9
Pacific Northern	14	13	7.7	14,583	12,155	20.0	2,049,671	1,672,480	22.5	72.1	66.8
Reeve	2	1	100.0	1,896	860	120.5	321,161	176,092	82.4	63.8	58.5
Wien	6	3	100.0	1,932	1,154	67.4	617,584	284,940	116.7	66.2	50.3
TOTA	48	38	26.3	30,486	19,363	57.4	5,142,892	3,125,770	64.5	66.5	57.6

ALL CARGO
(Ton miles in thousands)

	Mail			Express			Freight			Total Scheduled			Total All Services**		
	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change	1959	1958	% Change
Aaxico	4	5	—20.0	9	7	28.6	167	186	11.4	180	198	—9.1	2,800	3,401	—17.7
Flying Tiger	43	31	38.7	65	24	170.8	7,073	5,068	39.6	7,181	5,123	40.2	13,943	11,971	16.5
Riddle	8	22	—63.6	20	16	25.0	1,755	2,181	—19.5	1,783	2,219	—19.6	4,410	6,752	—34.7
Slick (C)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,438	1,763	38.3
Aerovias Sud	.....	.....	.....	.....	.....	.....	531	613	—13.4	531	613	—13.4	550	636	—13.5
Seaboard & Western	470	76	518.4	.....	.....	.....	2,634	799	229.7	3,104	875	254.7	3,128	3,424	—8.6
TOTAL	525	134	291.8	94	47	100.0	12,160	8,847	37.4	12,779	9,028	41.5	27,269	27,947	—2.4

*Western on strike during first 10 days of June 1958.
**Includes charter, military contract and in isolated instances passenger ton-miles in charter operation.
(C) Charter operation only.

U. S. Airline Revenues and Expenses

2nd Quarter 1959 vs. 1958

This complete summary compiled by AIRLIFT magazine from Official CAB Records

Airlines	Total Operating Revenues 1959	Total Operating Revenues 1958	% Change	Passenger Revenues 1959	Passenger Revenues 1958	% Change	Total Operating Expenses 1959	Total Operating Expenses 1958	% Change	Net Operating Income 1959	Net Operating Income 1958	% Change
DOMESTIC												
American	$ 95,857,974	$ 81,286,871	17.9	$ 86,419,294	$ 72,569,776	19.1	$ 85,278,112	$ 72,124,557	18.2	$ 10,579,862	$ 9,162,314	15.5
Braniff	16,349,359	15,164,436	7.8	14,889,607	13,896,705	7.1	14,760,196	13,772,656	7.2	1,589,163	1,391,780	14.2
Capital	28,388,626	26,663,038	6.5	26,720,470	25,053,084	6.7	27,837,997	25,615,801	8.7	550,629	1,047,237	—47.4
Continental	9,629,483	6,524,442	47.6	8,925,861	5,990,675	49.0	8,914,539	6,635,908	34.3	714,944	—111,466	..
Delta	26,146,966	21,989,562	18.9	23,919,681	19,922,431	20.1	24,230,793	20,727,766	16.9	1,916,173	1,261,796	51.9
Eastern	70,173,244	63,262,060	10.9	65,795,355	59,339,790	10.9	65,932,040	57,233,514	15.2	4,241,204	6,028,546	—29.6
National	15,754,095	13,704,930	14.9	14,312,136	12,311,331	16.3	15,626,272	13,504,157	15.7	127,823	200,773	—36.3
Northeast	7,873,393	5,719,005	37.7	7,427,437	5,320,397	39.6	8,934,834	7,374,174	21.2	—1,061,441	—1,655,169	..
Northwest	21,787,103	16,629,985	31.0	19,538,171	14,885,746	31.3	20,180,865	15,782,913	27.9	1,606,238	847,072	89.6
Trans World	68,056,441	55,611,053	22.4	63,052,628	51,161,649	23.2	58,845,407	55,063,663	6.9	9,211,034	547,390	+100.0
United	84,155,189	78,150,404	7.7	73,662,039	69,732,301	5.6	73,268,097	69,500,823	5.4	10,887,092	8,649,581	25.9
Western*	13,347,106	2,001,599	+100.0	12,408,952	1,815,088	+100.0	11,065,647	3,920,561	+100.0	2,281,459	—1,918,962	+100.0
TOTALS	$467,518,979	$386,707,385	18.3	$417,071,631	$351,998,973	18.5	$414,874,799	$361,256,493	14.8	$ 42,644,180	$ 25,450,892	67.6
INTERNATIONAL												
American	$ 1,573,181	$ 1,496,849	5.1	$ 1,301,197	$ 1,216,455	7.0	$ 1,694,996	$ 1,652,472	2.6	$ —121,815	$ —155,623	..
Braniff	1,977,718	1,826,529	8.3	1,658,120	1,603,411	3.4	2,016,536	2,144,613	—6.0	—38,818	—318,084	..
Delta	1,398,132	1,368,014	2.2	1,288,644	1,257,561	2.5	1,425,404	1,474,913	—3.4	—27,272	—106,899	..
Eastern, Overseas	6,534,612	5,882,836	11.1	6,112,714	5,374,151	13.7	5,890,155	5,351,206	10.1	644,457	531,630	21.2
San Juan	4,537,687	3,908,122	16.1	4,264,429	3,546,463	20.2	4,110,652	3,565,327	15.3	427,035	342,795	24.6
Bermuda	768,714	996,825	—22.9	705,804	951,044	—25.8	593,600	720,178	17.6	175,114	276,647	—36.7
Mexico	1,228,211	977,889	25.6	1,142,481	876,644	30.3	1,185,903	1,065,701	11.3	42,308	—87,812	..
National	978,239	704,474	38.9	901,536	629,501	43.2	938,328	889,402	5.5	39,911	—184,928	..
Northwest	10,347,785	8,696,597	19.0	6,862,518	5,814,824	18.0	8,233,146	6,776,548	21.5	2,114,639	1,920,049	10.1
Panagra	4,413,403	4,581,416	—3.7	3,257,337	3,152,102	3.3	4,848,574	4,754,120	2.0	—435,171	—172,704	..
Pan American, System	90,458,962	79,926,068	13.2	70,083,744	61,791,333	13.4	84,349,756	77,802,923	8.4	6,109,206	2,123,145	187.7
Non Divisional	..	..	..	..	..	..	9,513	..	..	—9,513	..	..
Latin America	23,005,507	21,184,944	8.6	17,746,090	15,780,114	12.5	25,052,799	23,842,097	5.1	—2,047,292	—2,657,153	..
Atlantic	43,518,951	38,573,594	12.8	36,003,847	31,596,801	13.9	37,014,148	35,164,516	5.3	6,504,803	3,409,078	90.8
Pacific	22,885,233	19,223,441	19.0	15,510,665	13,695,579	13.3	20,990,231	17,595,273	19.3	1,895,002	1,628,168	16.4
Alaska	1,049,271	944,089	11.1	823,142	718,839	14.5	1,283,065	1,201,525	6.8	—233,794	—257,436	..
Trans Caribbean	1,075,108	1,042,431	3.1	803,317	699,995	14.8	1,138,126	937,510	21.4	—63,018	104,921	..
Trans World	20,612,299	21,363,587	—3.5	14,071,444	17,582,734	—20.0	21,251,951	22,336,461	—4.9	—639,652	—972,874	..
United	4,456,010	3,779,321	17.9	4,168,318	3,541,775	17.7	3,363,360	3,133,059	7.4	1,092,650	646,262	69.1
Western*	929,925	78,774	+100.0	876,617	35,420	+100.0	995,980	252,616	+100.0	—66,055	—173,842	..
TOTALS	$144,755,374	$130,746,896	10.7	$111,385,506	$102,699,262	8.5	$136,146,312	$127,505,843	6.8	$ 8,609,062	$ 3,241,053	165.6
LOCAL SERVICE												
Allegheny	$ 2,623,121	$ 2,620,006	0.1	$ 1,779,634	$ 1,514,384	17.5	$ 2,672,968	$ 2,325,083	15.0	$ —49,847	$ 295,003	..
Bonanza	1,448,376	1,140,313	27.0	954,401	692,518	37.8	1,619,788	1,124,873	44.0	—171,412	15,440	..
Central	1,343,830	1,088,482	23.5	588,481	432,596	36.1	1,357,339	1,126,050	20.5	—13,509	—37,568	..
Frontier	2,130,395	1,835,305	16.1	1,258,992	1,123,995	12.0	2,655,797	1,835,083	44.7	—525,402	222	..
Lake Central	1,182,990	975,619	21.3	683,569	495,693	37.9	1,075,104	951,198	13.0	107,886	24,421	341.8
Mohawk	2,794,542	2,144,573	30.3	2,169,334	1,650,032	31.5	2,637,321	2,198,846	19.9	157,221	—54,273	..
North Central	4,389,997	2,986,400	47.0	3,030,094	2,187,303	38.5	4,501,889	3,122,016	44.2	—111,892	—135,616	..
Ozark	2,757,854	2,125,524	29.7	1,940,579	1,292,199	50.2	2,624,410	1,921,476	36.6	133,444	204,048	—34.6
Pacific	2,452,596	1,702,598	44.1	1,461,950	1,183,026	23.6	2,076,923	1,773,245	17.1	375,673	—70,647	..
Piedmont	2,750,374	2,312,292	18.9	1,982,385	1,538,861	28.8	2,964,935	2,188,804	35.5	—214,561	123,488	..
Southern	1,530,007	1,175,151	30.2	852,704	668,742	27.5	1,431,646	1,244,587	15.0	98,361	—69,436	..
Trans-Texas	1,937,134	1,713,329	13.1	1,047,043	858,904	21.9	1,808,990	1,701,768	6.3	128,144	11,561	..
West Coast	1,979,049	1,181,981	67.4	1,013,797	730,062	38.9	1,964,471	1,222,907	60.6	14,578	—40,926	..
TOTALS	$ 29,320,265	$ 23,001,573	27.5	$ 18,763,463	$ 14,368,315	30.6	$ 29,391,581	$ 22,735,856	29.2	$ —71,316	$ 265,717	..
HELICOPTERS												
Chicago	$ 753,645	$ 446,027	68.9	$ 299,877	$ 152,574	96.5	$ 570,741	$ 465,811	22.5	$ 182,904	$ 216	+100.0
Los Angeles	360,240	337,244	6.8	66,273	51,808	27.9	344,786	321,979	7.1	15,454	15,265	1.2
New York	889,417	606,599	46.6	235,875	162,039	45.6	837,539	715,361	17.1	51,878	—108,762	..
TOTALS	$ 2,003,302	$ 1,409,870	42.1	$ 602,025	$ 366,421	64.3	$ 1,753,066	$ 1,503,151	16.6	$ 250,236	$ —93,281	..
TERRITORIAL												
Caribair	$ 676,995	$ 519,469	30.3	$ 622,901	$ 468,978	32.8	$ 585,650	$ 512,613	14.2	$ 91,345	$ 6,856	+100.0
Hawaiian	1,876,517	1,519,892	23.5	1,446,309	1,232,800	17.3	2,001,225	1,464,260	36.7	—124,708	55,632	..
Trans Pacific	804,044	698,118	15.2	754,262	557,684	35.2	779,739	604,310	29.0	24,305	93,808	—74.1
TOTALS	$ 3,357,556	$ 2,737,479	22.7	$ 2,823,472	$ 2,259,462	25.0	$ 3,366,614	$ 2,581,183	30.4	$ —9,058	$ 156,296	..
ALASKA												
Alaska	$ 2,144,920	$ 1,512,055	41.9	$ 737,569	$ 493,608	49.4	$ 2,099,891	$ 1,501,821	39.8	$ 45,029	$ 10,234	+340.0
Alaska Coastal	638,420	396,385	61.1	280,102	211,917	32.2	532,758	378,128	40.9	105,662	18,257	478.7
Cordova	299,451	213,546	40.2	36,642	27,136	35.0	291,280	259,798	12.1	8,171	—46,252	..
Ellis	n. r.	301,892	..	n. r.	136,963	..	n. r.	201,213	..	n. r.	100,679	..
Nor. Consolidated	n. r.	534,497	..	n. r.	195,604	..	n. r.	597,909	..	n. r.	—63,412	..
Pacific Northern	3,038,220	2,578,109	17.8	2,031,044	1,615,854	25.7	2,734,457	2,450,351	11.6	303,763	127,758	137.8
Reeve	n.r.	541,019	..	n. r.	276,313	..	n. r.	403,257	..	n. r.	137,762	..
Wien	1,295,674	950,482	36.3	275,384	219,672	25.4	1,303,240	916,178	42.2	—7,566	34,304	..
TOTALS	$ 7,416,685	$ 7,027,985	31.3	$ 3,360,741	$ 3,177,067	30.9	$ 6,961,626	$ 6,708,655	26.4	$ 455,059	$ 319,330	215.3

	Cargo Revenues 1959	Cargo Revenues 1958	% Change	Charter Revenues 1959	Charter Revenues 1958	% Change	Total Operating Revenues 1959	Total Operating Revenues 1958	% Change	Total Operating Expenses 1959	Total Operating Expenses 1958	% Change	Operating Profit or Loss 1959	Operating Profit or Loss 1958	% Change
ALL CARGO															
Aaxico	$ 1,435	$ 133	+100.0	$ 1,388	$ 1,506	—7.8	$ 1,317	$ 1,672	—21.2	$ 1,105	$ 1,773	—37.7	$ 212	$ —101	....
Flying Tiger	n. r.	2,748	....	n. r.	5,951	....	n. r.	9,335	....	n. r.	7,963	....	n. r.	1,372	....
Riddle	n. r.	1,239	....	n. r.	1,399	....	n. r.	2,469	....	n. r.	3,376	....	n. r.	—907	....
Slick	....	....	....	1,791	1,548	15.7	1,901	1,615	17.7	1,678	1,766	5.0	223	—151	....
Aerovias Sud	n. r.	381	....	n. r.	58	....	n. r.	450	....	n. r.	482	....	n. r.	—32	....
Seaboard & Western	n. r.	873	....	n. r.	3,442	....	n. r.	4,811	....	n. r.	4,598	....	n. r.	213	....
Totals	$ 1,435	$ 5,374	....	$ 3,179	$13,904	4.0	$ 3,218	$20,352	—0.2	$ 2,783	$19,958	—21.0	$ 435	$ 394	....

* WAL operations suspended during period 2/21/58 through 6/10/58.
n. r.—No report by carrier by CAB deadline. Total percentages reflect only those carriers for which 1959 figures are available.

GE Licks Noise, Thrust Reversal for 880

New suppressor approach holds thrust losses down, thrust reverser system betters original guarantees

Cincinnati—Jet noise suppression and thrust reversal—two of the more perplexing of turbine transport design puzzles—have been solved for the Convair 880.

General Electric engineers, given the design task for both of these commercial jet necessities, have come up with a combination of units that not only meet but beat original performance guarantees.

Last month, with some 7,072 hrs. of suppressor time and 6,089 hrs. of reverser experience under its belt, GE matched up its results with original guarantees made to Convair.

The answers: It's 8-lobe "daisy ejector" suppressor will involve substantially less than the 1.5% engine thrust loss set down in the specifications. Internal losses fall below the 1.5% figure, external losses are negligible and a special shrouded 8-lobe nozzle has produced performance gains that hold the total suppressor thrust losses to about 1%.

In reverser design, GE employs a combination of two 120° cascade sections with integral "clamshell" doors that nestle snugly in the side of tailpipe in normal flight. Thrust loss is below the 1% guaranteed to Convair.

In its approach to suppressors, a $5-million project, GE looked at three conventional designs—the multi-lobe stacks now in use, the Rolls-Royce type nozzle and the so-called "daisy ejector." Its real success with the latter, however, resulted from the nozzle efficiencies it realized when it introduced a shroud or wall of air around each of the lobes. This feature virtually leveled off the efficiency of the nozzle at a high point for all operating conditions —takeoff, holding or cruise.

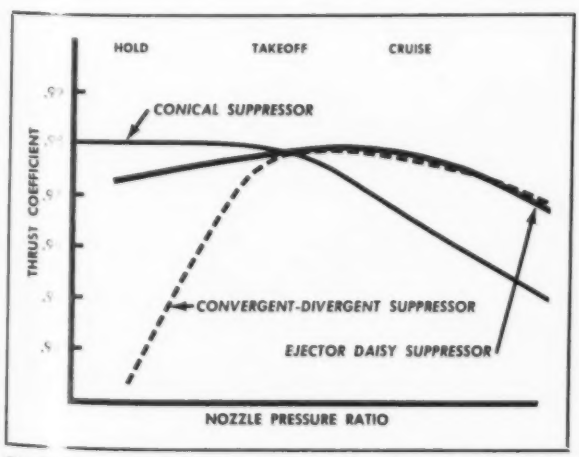
The suppressors, which have been on production 880s since flight testing began, have logged more than 1,000 hrs. at Convair and better than 1,700 hrs. on GE's B-66 testbed.

From the standpoint of fuel consumption resulting from thrust losses, GE engineers feel the overall suppressor performance is anywhere from 2% to 5% more efficient than realized by other designs to date, while meeting noise level minimums set for the jets. And although prototype weight ran about 175 lbs. per engine, GE has cut the production figure for the .045" stainless unit to about 120 lbs. Overhaul period is guaranteed to match that of the engine, which will start out at 1,000 hrs.

In reverser development, the integral clamshell doors combined with the cascade side sections on the 880 tailpipe are also exceeding original guarantees. Instead of 5,000 lbs. reverse thrust, two-second actuation time and 1% maximum thrust loss, GE has achieved from 5,400 to 5,800 lbs. thrust reversal, less than one-second actuation and losses below 1%.

Here's how GE suppressor looks from aft of engine staring down the tailpipe.

In actual tests on the 880 involving more than 700 reversals, the Convair jet (at 150,000 lbs.) was slowed from 100 to 40 knots within 3,000 ft., an estimated 1,500 ft. shorter than would



Curve shows how GE gained in nozzle performance. At right, A. P. Fioretti, manager, applications engineering, shows combined suppressor and reverser during unveiling at Paris Air Show in June.

LOWER OPER

1300 HOURS BETWEEN OVERHAULS FOR ROLLS-ROYCE AVON TURBO JET

DE HAVILLAND COMET

SUD AVIATION CARAVELLE

On July 3rd, 1959 the British Air Registration Board approved an extension of overhaul life of the Avon RA.29 to 1300 hours. The Avon entered commercial service on the North Atlantic route with British Overseas Airways Corporation on October 4th, 1958 at an overhaul life of 1000 hours.

Approval has also been given for trials at 1600 hours between overhauls.

During overhaul life, no scheduled engine unit changes are made apart from the fuel filter element and no internal inspection of the engine is necessary.

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AVON TURBO JETS

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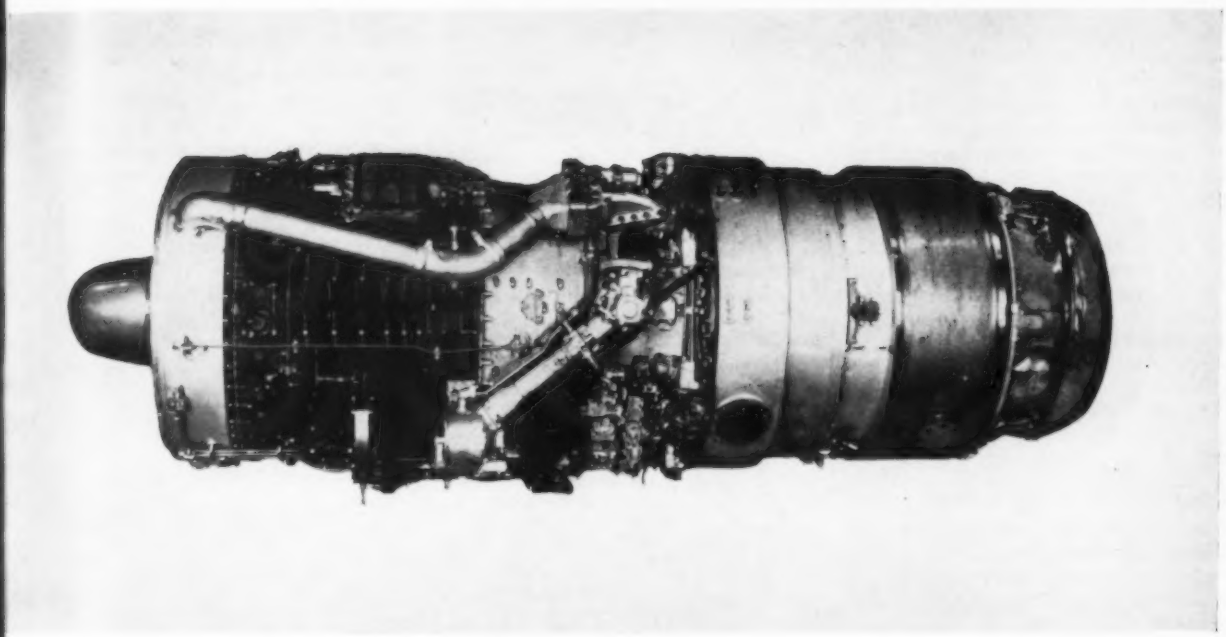
RATING COSTS



4 MAN-MINUTES PER FLYING HOUR FOR ALL AVON MAINTENANCE

This figure includes the installation of the engine and its removal from the aircraft.

ONE UNSCHEDULED OVERHAUL IN 49,000 ENGINE HOURS

During the first nine months of Comet operation by B.O.A.C. only four engines were removed in 49,000 hours flying for causes considered to be Rolls-Royce responsibility. Only one of these required overhaul, the other three being rectified and returned to service.

AVON ENGINES ARE IN SERVICE WITH, OR ON ORDER FOR:—

Aerolineas Argentinas, British European Airways, British Overseas Airways Corporation and East African Airways in de Havilland Comets; and Air Algerie, Air France, Finnair, Royal Air Maroc, Scandinavian Airlines System, Swissair and Varig in Sud Aviation Caravelles.

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be required (without reversers) using normal brakes.

Procedure spelled out for 880 pilots will be to actuate reversers as soon as firmly on the ground (120 knots); hold maximum reverse down to 60-65 knots; cut engine to 90% rpm until 40 knots; then set engine at idle reverse. A safety hook-up on the control will prevent reverse power if clamshell doors on a particular engine fail to operate.

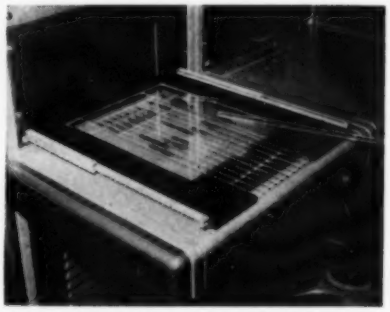
Although the GE achievement in holding combined suppressor/reverser losses to about 2% can be expected to raise technical eyebrows in other transport development areas, the apparent success of the suppressor program presumably could have lasting effects. Although the work in other instances was coordinated between aircraft and engine builders, Convair turned over the entire development responsibility for noise suppression to GE, and the promising fruits of this decision could well set a pattern for the future.

TV Data System Speeds EAL Flight Info

A thirty-position, photocell-actuated television communications system has just been installed for Eastern at Miami's International Airport—but it doesn't contain a single TV camera.

The system—known as the Scan-A-Graph and produced by Television Utilities Corp., Corona, New York—does away with the customary television camera by using a photocell to detect image brightness differences. Flight data displayed on transparent material up to 8½ by 11 in. is transmitted to more than 30 ticket counters.

A bank of four monitors, each showing televised information on 10 flights, is shown behind a ticket counter at Eastern's Miami terminal.



Pre-fashioned data strips, with information printed in black on a transparent background, are slid into position on the photocell actuated transmitter.

Eastern uses four banks of Scan-A-Graph transmitters, each of which can legibly reproduce information on up to 10 flights. A fifth channel carries additional data for flight agents only.

The transmitter is located in the flight information control tower, where a single operator can keep up to date data shown on monitors positioned at strategic spots throughout the terminal.

Eastern's Miami project, which includes a baggage conveyor system and other facilities in addition to the closed-circuit TV network, reportedly cost $2 million.

Pickup Signals Excess Jet Engine Vibration

Engine vibration in the three Conway-powered Douglas DC-8 transports for Alitalia Airlines will be monitored by a lightweight system developed by Consolidated Systems Corp., a subsidiary of Consolidated Electrodynamics Corp., Pasadena, Calif.

The 16-lb. system consists of a vibration pickup for each engine, a four-channel amplifier and an indicator on the pilot's control panel. If vibration exceeds a preset level on any engine, a warning light alerts the pilot who may then switch his indicator to the appropriate engine to measure vibration.

Seat-Mile Cost 1.15¢ with Airco DH 121

The DH 121 jet transport, 24 of which have been ordered by British European Airways, will cost 1.15 cents per seat-mile to operate over a 1,000-mile stage with 97 seats (ATA formula) according to the Aircraft Manufacturing Co.

Airco comprises de Havilland, Hunting and Fairey interests and is to manufacture the DH 121. Airco reports that BEA's order for 24 DH 121s plus spares is worth some $78 million. The airline has taken an option on 12 more aircraft.

Powerplant of the DH 121 is the Rolls-Royce RB 163, a by-pass engine developing 10,100 pounds static thrust. Three of these engines are mounted in the rear of the fuselage. The first DH 121 is scheduled to fly in 1961 and BEA deliveries are scheduled to start in late 1963.

Latest data for the DH 121, which has been considerably modified in the past 18 months, shows that the BEA aircraft will be fitted out to take 75 mixed-class passengers or 90 in economy class. With its full load, the DH 121 will be able to use runways of under 6,000 feet and operate stages of up to about 1,200 miles.

With runways exceeding 6,000 feet, longer stages can be flown with full payload—for example, London-Moscow (1,600 miles). The maximum cruising speed is more than 600 mph (Mach 0.875 at 20,000 feet). A special feature is the aircraft's ability to land at 95% of its maximum takeoff weight.

Latest Airco data on the DH 121 show the following specs:

Max. gross weight	105,000 lbs.
Max. landing weight	100,000 lbs.
Span	89 ft. 10 in.
Wing area	1,350 sq. ft.
Fuselage length	105 ft.
Height (tail)	27 ft. 3 in.

For ATC Relief, A Super Volscan

CINCINNATI, OHIO—The U.S. Air Force's Volscan semi-automatic air traffic control system is taking on a new look here at Avco's Crosley Division —one that could greatly enhance its potential as an element of the nation's civil/military ATC system.

Following initial tests at Clinton County AFB (Ohio) and subsequent USAF evaluation last year at Eglin AFB, Fla., the new Volscan has been expanded in scope and nears completion.

Now identified as AN/GSN-11 ATC system, the "Super Volscan" is slated for simulated tests at Avco-Crosley and then will be shifted to FAA's Atlantic City test facility for flight evaluation.

Here are some of Volscan's latest features:

- It provides a departure console and voice relay console, both with ppi scopes, in addition to the traffic console and monitor console. Traffic and departure consoles handle six aircraft.
- It can control aircraft in three optional "path-stretching" arrangements, a simple "Beta" vectoring; a dogleg type of control; and a teardrop or jet penetration.
- In less dense traffic areas, it could be split three ways to handle control at three separate airports.
- It can set a wide variety of schedule intervals, anywhere from 10 seconds to 1 minute. And it has "built-in" protection against collision via no-passing computation and a variety of six separate glide slopes.

As an additional improvement, the new Volscan will incorporate a means of introducing an alpha-numerical identification of the aircraft on the scope as soon as it is assigned an entry "gate" into the system.

System performance calls for a computing range of 60 miles, a target speed range from 60 to 440 knots indicated; a maximum altitude of 45,000 ft.; rate of descent from 100 to 10,000 fpm and an over-all computed timing accuracy of plus or minus nine seconds.

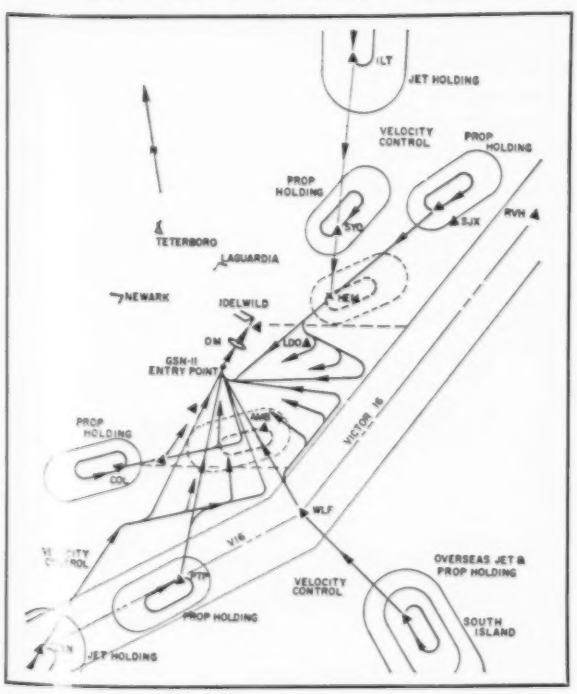
Although originally intended as purely a high-performing control means for military combat "return-to-base" operations, the improved Volscan obviously shows increasing promise as a gap-filling if not permanent part of the U.S. traffic control system.

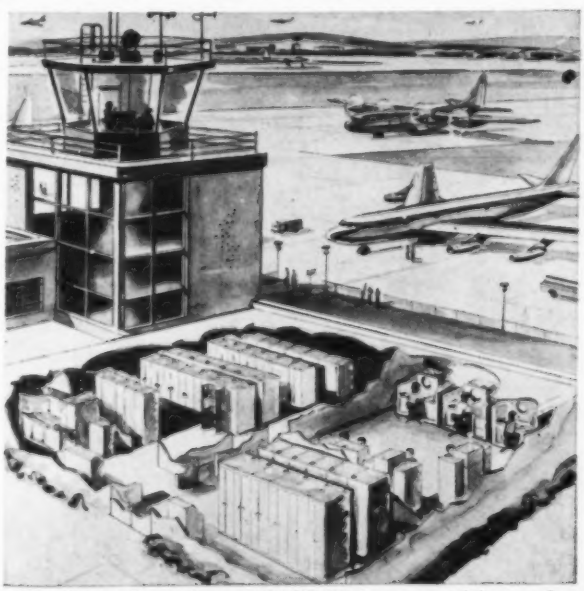
With its expanded capacity, the GSN-11 will be able to control 18 inbound and six departing aircraft simultaneously. What is more, it has the ability to automatically track each airplane, accurately compute its progress through the control area, even take on such chores as "path stretching" automatically to assure an orderly delivery of aircraft to the approach area.

In a recent study by Crosley engineers R. Meuleman and R. F. Gray they estimated that use of the new Volscan in the complex Idlewild (N.Y.) control situation could increase maximum arrival rate from 15 per hour to 40 or 45 aircraft per hour.

Essentially, the GSN-11 system is a combination target tracking and analog computer hook-up operating with a conventional surveillance radar. It "captures" an aircraft entering the area by means of a light gun; places a "gate" around it on the radar scope for positive control assignment and automatic tracking; computes its exact progress all the way to the approach entry; and continuously provides means for either direct communication or automatic voice relay to the pilot.

Although seemingly complex in scope (it involves some 45 equipment cabinets and six control consoles) preliminary estimates at Avco-Crosley place its cost somewhere between $750,000 and $1 million per copy in production quantities. However, assuming it undergoes and passes the test at Atlantic City, Volscan could provide FAA a relatively inexpensive means of increasing ATC system capacity while plying the uncertain and considerably more expensive paths of ultimate ATC system development.





Adaptability of new Super VOLSCAN to commercial operation is shown (left) for Idlewild Airport arrival routes. Sketch (above) shows artist's concept of complete Volscan equipment installation in an airport terminal.

Former Air Force pilot Dan Mueller and *(right)* ex-Navy flier Joe Mueller. Brothers started at Midland-Odessa in 1951.

Airman's Haven in Southwestern Texas

One of Southwest Air Rangers' three busy hangars at the Midland-Odessa Air Terminal. They are open from 6 AM to 10 PM . . . and longer upon request.

Experienced licensed mechanics specialize on engine and airframe work for planes up to and including light twins.

Courteous service is a by-word at Southwest Air Rangers. Along with gas and oil, every plane gets clean windshield and windows.

● Throughout the oil-rich Permian Basin of Southwestern Texas, the familiar "flying cowboy" emblem of Southwest Air Rangers is synonymous with courteous and efficient service. It has been that way since 1939 when the four Mueller brothers started in El Paso. World War II halted operations temporarily. Then in 1951, they expanded with Joe and Dan opening shop at Midland-Odessa. Here, their honest and efficient way of doing business soon earned them a solid reputation and a growing operation.

Today at the Midland-Odessa Air Terminal, Southwest Air Rangers offers complete service and facilities for local and transient fliers—three big hangars accommodating aircraft up through DC-3's . . . A&E mechanics for maintenance and overhaul . . . Piper sales and service . . . executive and oil field charter . . . flight instruction . . . and, of course, Phillips *66* Aviation Oil and Gasoline . . . Grades 80, 91, 100 and 115. Transient fliers will also find at the field an excellent restaurant, car rentals, and complete weather information.

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By CAPT. J. D. SMITH

Why the Big Directional Altitude Mix-up

For many years the procedures governing use of en route altitudes had remained the same, whether utilizing IFR or VFR procedures. It was north or east "odd" south or west "even."

When CAA started making use of preferential routings for IFR operations, airline pilots constantly complained of being assigned incorrect altitudes for direction of flight. Westbound flights would be using odd altitudes, creating a head-on situation with opposite direction VFR traffic.

CAA's answer was that no attempt was being made to provide separation between IFR and VFR traffic. Consequently, regardless of altitude assignment it was the pilot's responsibility to avoid other aircraft when in VFR conditions. This philosophy still exists.

Technically, CAA was correct. Likewise, the pilots' concern was also valid. On many occasions pilots would continually press controllers for an altitude consistent with direction of flight to eliminate potential head-on collision course with VFR traffic.

A Simple Cure: Words

Pros and cons were discussed for a considerable period of time. Expanded use of IFR further antagonized exposure to the collision problem. Relief was slow in coming, but has been partly realized simply by changing words in Civil Air Regulations.

CAR now offers improvement without restricting those who wish to operate VFR. The change is quite simple. VFR flights now add 500 feet to the altitude for direction of flight. An eastbound VFR flight now utilizes 9,500 feet instead of 9,000. By changing the CAR there currently exists definite separation between IFR and VFR when at cruising altitudes.

Unfortunately, the benefits exist only while at en route altitudes. Climbs and descents still see IFR and VFR flights intermingled. There are also some minimum IFR en route altitudes which still cause IFR and VFR flights to be at the same altitude. The same is also true of some minimum altitudes for holding patterns.

Some of these situations are minimized by advisory services rendered by controllers having available radar equipment. Although a complete solution has not yet been realized, substantial relief has been obtained merely by shuffling a few words.

500 Ft. Better Than Nothing

Some question the advantage of only 500 feet vertical separation between IFR and VFR flights, particularly where we don't have a procedure to insure that all aircraft are using the same altimeter setting. This point could probably be improved through some further word merchanting. However, 500 feet separation is still better than having to operate head-on into traffic at the same altitude. All airspace users presumably would be satisfied if they could be assured of always having at least this much vertical separation from other aircraft.

Use of odd and even altitudes for aircraft flying IFR in the same direction is oftentimes necessary in order to avoid lengthy delays. Some pilots still believe it is safer to be at the proper altitude for direction of flight. Admittedly this assumption was correct prior to changing CAR. But in today's operation, no advantage is gained by being at the so-called IFR altitude for direction of flight.

The FAA's preferential routing philosophy is an attempt to increase traffic flow by substantially reducing the need for coordination within the agency controlling the traffic.

Letters of Agreement Help

Coordination among controllers has been reduced by Air Route Traffic Control Centers establishing Letters of Agreement which assign various blocks of altitudes which may be used without coordinating with the next Center. Years ago it was necessary to coordinate each individual flight with the adjacent Center before issuing a clearance.

These Letters of Agreement together with revised CAR now insure that, in most instances, only IFR movements are utilizing the 1,000 foot levels. Normally westbound flights use even altitudes. So would southwest or northwest bound traffic. But when operating under IFR procedures, the conflict would initially result from improper control technique, i.e., inability to observe the other traffic (even though VFR could also be a contributing factor).

For the most part, when higher than 5,000 feet above the ground, current procedures provide at least 500 feet vertical separation between IFR and VFR flights. In this case the main exception would be when climbing or descending.

'Wrong' Altitude Can Be Safer

In reality however it is oftentimes more advantageous to operate IFR at the so-called wrong altitude for direction of flight. Consider the westbound flight at the odd altitude. The Letter of Agreement may permit a controller use of the odd altitudes at his discretion. If not he must coordinate use of the altitude prior to assignment. Really no different from what takes place when using the even altitude.

Using the odd altitude could eliminate an en route delay, permit use of an altitude offering better passenger comfort or avoid turbulence.

The important point to consider is that FAA is responsible to provide separation between IFR operations. Statistics clearly show that fewer incidents occur when an aircraft is assigned the so-called wrong IFR altitude for direction of flight.

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BEGINNING NEXT MONTH...

A NEW STANDARD OF JET TRAVEL

UNITED AIR LINES DC-8

Next month the great Douglas DC-8 Jet will make its first appearance in scheduled service flying under the colors of United Air Lines.

During the last few months informed travelers have been asking us why—when we could have been the first airline to offer jet service—we chose to do otherwise.

It is a matter of record that we did have that choice. United was the first domestic airline to study, evaluate and order jets. In 1955, after our decision to commit ourselves to a jet equipment program, we conducted an evaluation of the two jet airplanes then available to order.

Our conclusion was that both are exceptionally fine aircraft, but the DC-8 is better suited to our requirements for long-range operation; it is larger and roomier; and built from the ground up specifically for passenger service. This greater flexibility of design has permitted us to incorporate all the knowledge United Air Lines has gained in 33 years of airline operation, as well as to benefit from Douglas' unmatched record of experience in designing and building passenger planes.

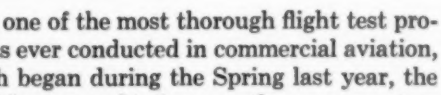
In choosing the DC-8 we selected the airplane having the later delivery date. But we believed that this was far outweighed by long-term benefits for the passenger in added roominess, seating luxury, quietness, comfort, convenience, and many other advances made possible by the DC-8.

In one of the most thorough flight test programs ever conducted in commercial aviation, which began during the Spring last year, the DC-8 has proved to be a worthy successor to a long line of dependable Douglas airplanes including the DC-3, DC-4, DC-6 and DC-7.

Along with the development of the aircraft itself has gone a careful program of preparing United Air Lines for the Jet Age—in personnel training, in new methods and techniques for weather analysis and reporting, communications, ground handling, in-flight service, and all other phases of our operations.

The product of all this extra time and extra care will represent not only a jetliner that is the largest and the newest by four years, but in our judgment the finest as well—a standard of jet travel that will not be equaled for years to come.

On your first flight, we know you will agree that the DC-8 was well worth waiting for.



PRESIDENT
UNITED AIR LINES

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Co-op Cuts Costs For Business Flyers

How a businessman can have a fleet of 18 aircraft at his disposal at less than the cost of outright ownership of just one is the success story of Sky Roamers Air Travel, Inc., a flourishing flying cooperative on the West Coast.

Organized as a flying club by a group of Lockheed Aircraft Corp. employes more than 13 years ago with 10 members and one airplane, Sky Roamers today boasts a membership of 150 with a fleet of seven Cessna 172s, nine Cessna 182s and two Cessna 310s.

The combined membership is expected to fly over 12,000 hours this year, nearly all for business and training missions. Sky Roamers has succeeded where some others have failed by a three-pronged program: sound management, adequate financing and diversification of membership.

"A well managed flying cooperative, having up-to-date equipment is economically feasible for pilots flying more than 35 hours but less than 300 hours a year," Jim Brown, LA Lockheed engineer and Sky Roamer president, told *AIRLIFT*. "A pilot who flies under 35 hours a year will find it more economical to rent an aircraft," he explained. "The pilot flying more than 300 hours will find it more satisfactory, even though possibly, not more economical, to own his own plane because he will be flying at a greater level than a cooperative is geared to handle."

The theorem is backed by the membership. One of the more active participants is Fred Jacob who flies nearly 200 hours a year for his company, the Jacob Market Equipment Co.

Jacob has owned his own planes—seven of them—over a 30-year period. Since selling his plane eight years ago to participate in the Sky Roamers program he has found:

"A owner of a four-seat airplane who es about 200 hours a year has doubl the costs of a Sky Roamer member b ause of depreciation and maintenan . An owner doesn't even start break g even until he flies about 350 hours year."

Fo about 1,400 hours logged over the sp n of his Sky Roamer membership, acob has found his total cost to be onl $12,000.

In recent months, he has made 46 trips to Las Vegas where his company is installing supermarket and hospital kitchen equipment. He estimates that by making the trips in Sky Roamer airplanes he has saved between $100 and $120 per trip in labor costs alone by flying up three workers at a time.

Cuts nonproductive costs

"If the union help I use, such as carpenters, painters and so forth were to drive up, it would cost eight hours per man in nonproductive wages for travel time alone," he noted. "I fly them up in an hour and a half and they are on the job."

He's also made numerous trips up on inspection and often takes customers along to show them new features of the equipment right on the spot. "We leave around lunch time, have plenty of time to inspect the job, have dinner and be home by midnight."

Jacob also uses the Sky Roamer planes for cross country flights. He makes an annual flight to New York, Miami, or Atlantic City for business conventions and other business trips to Michigan and Denver.

When first invited into membership, Jacob refused: "I didn't want anyone else flying my airplane. But then I started noticing that Sky Roamers took even better care of their airplanes than I did of mine and I was sold."

Besides the airline-type maintenance conducted by the cooperative— "I've never had more than an hour's delay for a minor adjustment on any trip"—Jacob is enthusiastic about the scheduling and availability of equipment. "Most of my trips are short notice, but there have been only two occasions in eight years when I couldn't get a plane exactly when I wanted it."

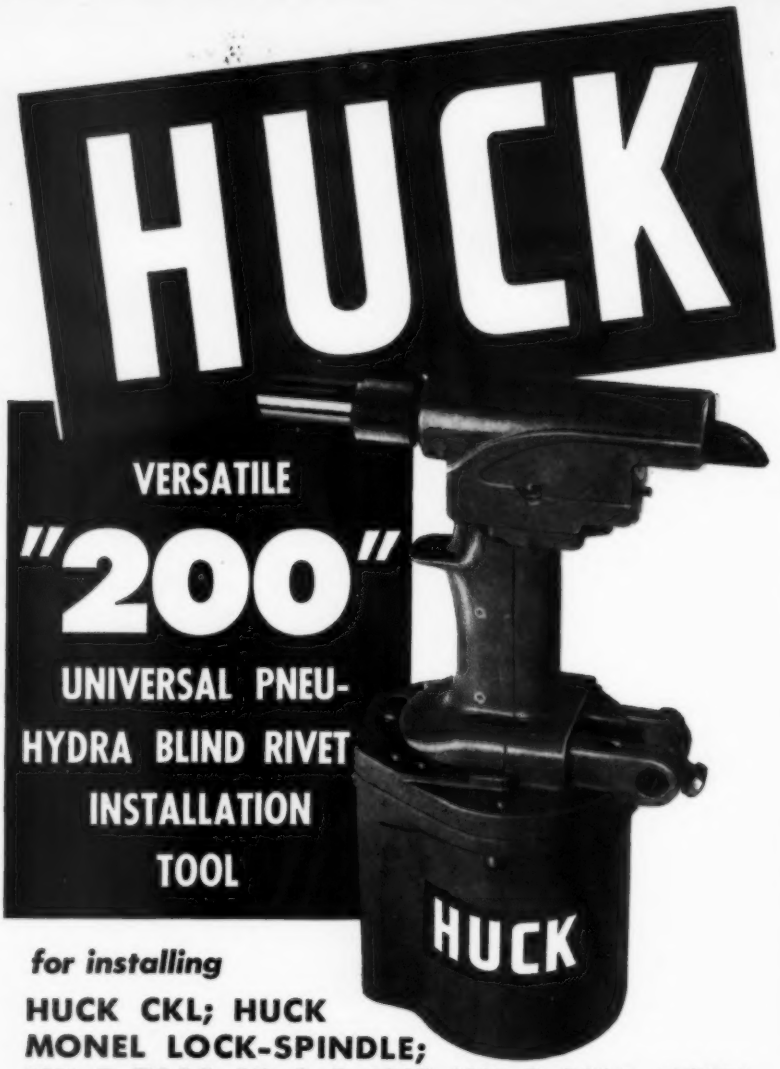
As a member of the Cessna 182 category of the cooperative, Jacob paid a registration fee of $100 and purchased a share of stock for $1,000. He has access to the 182s and the 172s at a fixed hourly rate and a monthly fee of $22 to cover fixed costs.

As enthusiastic and as typical is William Ropp, a member of the Cessna 310 twin-engine category—though his flying background differs completely.

A member of the firm of Ropp & Ropp structural engineers, Ropp is a product of the cooperative. He joined Sky Roamers 3½ years ago as a student pilot and took his training for a private ticket under the club's instructors. Since getting his license he has

Chuck Malone (left) operations manager for Sky Roamers wishes Bill Ropp, consulting engineer, a successful trip as he prepares to take off in Cessna 310 owned by the cooperative at Burbank.

HUCK



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logged 670 hours and joined the 310 group when the first twin was procured six months ago. He has now logged 75 hours of multi-engine time.

As a consulting engineer, Ropp flies throughout California and occasionally to Holloman AFB and Albuquerque.

He uses the cooperative's 310 on trips of 200 miles or more, a 172 or 182 on flights of less distance.

"As a consulting engineer I sell my time," he said. "A drive to Santa Barbara used to take an entire day for me to accomplish about two hours' work, which meant I lost between $15 and $20 an hour. Now I leave by plane, say, right after lunch, and I'm home before six. I save half a day in lost time.

"The Cessna 310 costs me $27.50 per hour. The drive to Santa Barbara at 8¢ per mile costs about $20. That small difference added to my hourly charges for my services puts $30 in my pocket every time I go. If I owned the 310 it would cost me about $45 an hour to operate the way I fly. So Sky Roamers is our answer."

In addition to maintenance and availability, the cooperative offers its members a safety program which an individual could not afford on his own.

The greatest testimonial to the cooperative's place in business flying is that the annual drop out rate is below 15% a year and that is absorbed by the long waiting list.

Executive Flying Pays Off For Dutch Firm

One of the rare examples of executive aircraft operation on the European mainland is the Philips Co., Eindhoven, Netherlands, but the success at Philips could prove an enticement for other large industrial organizations.

The Dutch electrical and electronics firm formed a flight division with a single Auster Autocrat in 1955, and today operates a five-plane fleet. Since '55, a Beech Super 18, Cessna 170B, de Havilland Dove and Heron were added, and a second Dove is now being considered. Only the Cessna 170 was sold, a 172 having replaced it.

Philips hired ex-KLM pilot Splinter Spierenburg as its chief pilot and formed a flight division now totaling 15 persons.

Flight discipline matches that of an airline. Pilots periodically receive proficiency checks.

Philips operation calls for 87 different points to be visited six times a year, and each aircraft logs about 500 hrs. annually.

So far executive flying has paid off for Philips. Service reliability has been excellent with only seven flights canceled and three others rerouted in three and one half years of operation.

Braniff's new fleet of Lockheed Electras, now in operation, will be augmented next December, by Boeing 707 jet liners—both using Texaco Aircraft Turbine Fuel.
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Hamburg's Continentale: Overhaul Base, Parts Dealer and Cargo Airline

A new European company that is fast making a name for itself is Continentale Deutsche Luftreederie. Based at Hamburg airport, it operates an overhaul base, a spare parts depot and a nonscheduled airline.

The company is amassing a huge stock of spares (mostly Douglas, Lockheed and Convair) at Hamburg by moving the $2 million inventory of Eastern Aircraft Corp. from Hackensack, New Jersey, to the German city.

Mario F. Ferreira, who hails from Portugal, has a controlling interest in both companies and is masterminding the Continentale development program. He has big plans to establish complete overhaul facilities for DC-3 and DC-4 aircraft at Hamburg and has several important commercial and military contracts under negotiation.

Ferreira is also in the used aircraft business and has been responsible for the sale of transport aircraft to operators in Japan, Syria, Lebanon and Morocco.

Continentale has had no easy time getting its operating permit because the German government has recently tightened up on granting licenses as a result of bad experiences with, in Continentale's words, "gypsy outfits with imperfect technical, financing and commercial background."

During the four-month examination of the company's facilities, German officials really gave Continentale "the works" before awarding the permit.

Continentale's Ferreira

Operating two DC-4s bought from TWA and one leased, Continentale is currently heavily engaged in the inclusive tour business. But it is also operating a round the world "tramp" cargo service and reports little difficulty in finding loads for the various sectors.

Sometimes passengers are carried to fill up the space and seats are installed and taken off the aircraft as required. (Continentale does not believe in the type that can be folded inside the aircraft because the weight involved represents too great a penalty.) Seats sometimes have to be moved by sea when traffic is very directional.

Non-Sked Seven Seas New U.S. 'Tramp' Line

A new "tramp steamer" airline offering contract services around the world has been organized with the imaginative name of Seven Seas Airlines with offices at 60 East 42nd Street, New York City. It is a Delaware corporation.

The two owners are not new to nonscheduled operations, since they had organized at one time American International Airways. They are Urban L. Drew, president, and Earl J. Drew, executive vice president, both with long-time aviation experience.

Seven Seas has purchased two DC-4s and hopes to expand this fleet by demand services everywhere outside the United States. So far both airplanes have been busy, including chartering to scheduled carriers. One recent charter was to Sabena for carrying three engines from New York for overhaul at Brussels. KLM has used Seven Seas for passenger charters.

The Drew brothers have obtained some financing from the Walter E. Heller Co., Chicago and New York, which is letting it be known throughout the aviation industry that it is willing to finance additional enterprises.

Earl Drew believes that Seven Seas is the only truly "tramp steamer" type of operation now provided by a U.S. company. He admits that competition from foreign carriers is stiff, but that an American company using American equipment and crews, and flying the American flag, can compete successfully against foreign concerns having the advantage of lower costs.

"Our main advantage is know-how with high-caliber people," Drew says. "The American flag is a standard of quality."

How does Seven Seas expect to get its business? "Wherever we can find it. There is no one place in the U.S., but the Baltic Exchange in London is helpful."

The Drews expect to keep busy, especially, in the so-called under-developed countries that are not yet ready for their own scheduled services. They have what is called "floating maintenance"—maintenance performed by an FAA-licensed mechanic flying with every trip plus servicing at recognized bases anywhere. Seven Seas will fly anywhere, anytime.

New Airplane, New Angle

After 13 years at Dougles Aircraft Co., crack test pilot J. G. "Jack" Armstrong has resigned to launch something new in consulting service for airlines—an efficiency firm to aid in planning and training for new aircraft.

Organized as Blandford-Armstrong & Associates (Douglas pilot Blandford will join in October), it will have headquarters in Geneva with a branch in Los Angeles.

Armstrong's forte is experience. In his recent post at Douglas he checked out the company's DC-8 Link simulator, made 150 flights in the DC-8 FAA certification program. His plan is to organize a pool of experienced flight and maintenance instructors capable of taking on any training mission an airline might seek in its preparation for introduction of new aircraft, piston, turboprop or jet.

Test pilot Armstrong

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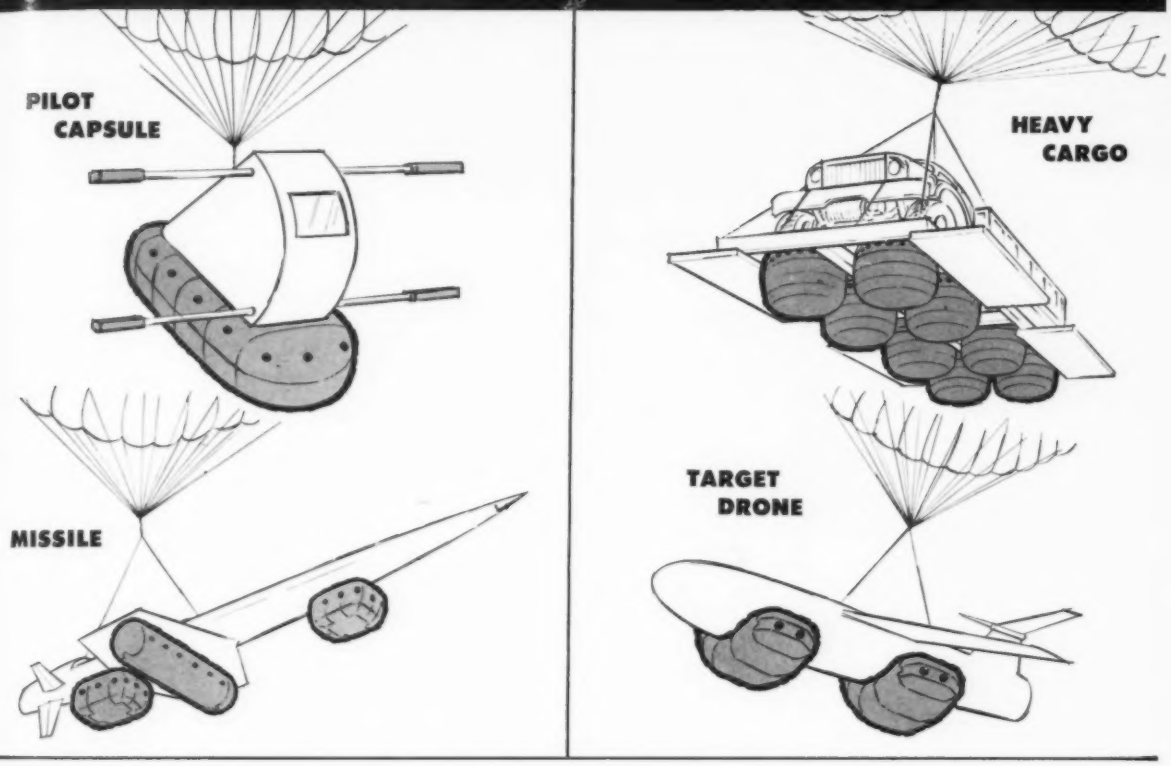

Solve New Missile and Capsule Recovery Problems

Air Cruisers has nearly a decade of experience in the development, testing and production of pneumatic recovery systems. Beginning with aerial cargo recovery, the company expanded its activities to include deceleration systems for various missile and target drone applications.

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PAR AVION

By ANTHONY VANDYK

• **Cold feet aboard Comets**—BOAC has had only one minor criticism of its Comet 4 from passengers: Those seated toward the center of the aircraft suffer from cold feet. This is because their feet rest on top of the fuel tank which becomes very cold.

The answer is to provide more insulation and to install electrically-heated floor matting in the area. In general, as we mentioned in June, the Comet has proved relatively trouble-free in its shake-down period. Most of the difficulties have involved such things as leaks in the "domestic" water system, replacement of servodyne seals and false fire warnings.

The most interesting Comet news from BOAC is that the break-even passenger load factor is between 43 and 47% depending on route, seating configuration and season. On the Britain-Far East services the break-even point is 47% via North India and 45% on the route via South India. On the North Atlantic it is 43%.

• **Red tape around charters**—One of Europe's major air brokers is unhappy with the CAB. E. A. Gibson & Co. Ltd. reports that "unfortunately charter business to and from the U.S. is extremely difficult to place—particularly at short notice—when the groups of passengers are not ships' crews, because prior permission has to be obtained from the CAB in Washington."

This normally requires 60 days' notice and the application which has to be completed by charterers is described by the British company as "both lengthy and involved." The Gibson organization complains that "even for loads of passengers which are so obviously of a bona fide nature it is impossible to obtain CAB permission within such a moderate time as 10 days."

• **A concession to KLM**—A mild cheer was heard recently in the Netherlands. For once a foreign nation had lessened instead of increased restrictions on KLM's operations. Australia has just permitted the Dutch airline to carry more passengers on its weekly Amsterdam-Sydney service. How many more? That's a state secret that neither the Netherlands nor Australia has divulged. But it is stated to be "substantially more."

It is needed to be—previously the Australians had limited KLM to 28 passengers. The Australians are still adamant on KLM's frequency—no more than one flight a week. And several governments are equally adamant that fifth freedom traffic be kept at a minimum on the weekly flight. It is forbidden on these sectors: Frankfurt-Rome; Frankfurt-Beirut; Rome-Beirut; Rome-Karachi; Karachi-Calcutta; and Manila-Sydney!

• **Air or surface?**—The determining factor in the choice between air or surface transport is the "price saved per hour." This is the opinion of Bo Bjorkman, Professor of Traffic and Transport Engineering at Stockholm's Royal Institute of Technology and formerly Secretary of the Air Research Bureau. He recently told the Italian Air Transport Development Center that this factor—what the air passenger has to pay for every hour he will gain in comparison with other forms—can be expressed in the following formula:

$$\frac{TA}{TS} = \frac{C}{\frac{PA - PS}{HS - HA}}$$

where T = traffic, P = price, H = time, A = air, S = surface and C = coefficient.

This shows that the way to continue the present trend from surface to air transport is either to reduce air fares nearer to surface fares or else to reduce the time of the air journey thereby increasing the time differential, Bjorkman points out. While fare reductions are closely associated with cost reductions and can be obtained by reducing the standard of service, the Swedish professor comments wryly, "The standard of comfort cannot possibly be reduced very much below the level of economy class."

Bjorkman notes the sad fact that in Europe over 50% of the time of any "air" journey involving distances of up to 650 miles is spent on the ground. As a result, introduction of faster aircraft has but a small effect on overall journey time. For example, replacement of the DC-6B by the Caravelle cuts only 20 minutes from the total time for a 300-mile trip!

• **Teaching Darts at Derby**—Representatives of no less than 60 airlines, 24 air forces, 50 aircraft manufacturers and 14 government civil aviation authorities have passed through Rolls-Royce's school at Derby. This establishment, located in an elegant mansion on beautiful grounds just a few miles from the company's head office and plant, is not an apprentice school. It is intended for the training of personnel from customers who have bought Rolls-Royce engines.

In its 21 years' existence the school has given instruction to 37,000 people of 61 different nationalities ranging from high executives to mechanics. At present about 2,000 "students" attend the school every year for courses varying in length between one and three weeks. The 20 full-time instructors have a mass of modern training aids at their disposal. No charge is made for personnel sent by customers to attend the school. And Rolls-Royce provides the "students" with an excellent free lunch each day!

At present Rolls-Royce is overhauling Darts of 16 different airlines ranging from British West India Airways to Iranian Airways. Among the operators who entrust the company with the overhaul of their Darts are BEA and KLM, although the former also does some turboprop overhaul work in its own shops. Rolls-Royce's average time to overhaul a Dart is four weeks.

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EXTRA SECTION

By FRED S. HUNTER

Roy Marquardt . . . An eye for the Mach 4 transport.

Hold onto your hat! Mach 4 transport coming up. Well, not immediately. But there's a gleam in Roy Marquardt's eye. Marquardt, of course, is a ramjet man. Right now the Marquardt Corp. is in production on ramjet engines for the Boeing Bomarc missile. But Marquardt believes the ramjet has great potential as a propulsion system for a commercial transport. "The ramjet-powered commercial transport would provide schedules of one hour flying time between Los Angeles and New York," said Marquardt. "The only requirement here is for someone to develop the airframe. We have a flight-proven engine."

Mach 3 Next Step

The ramjet engine's efficiency comes at high speeds. At Mach 3, the ramjet's compression ratio is 25-to-1. At Mach 4, it's 100-to-1. Most aircraft designers currently studying supersonic transport possibilities are talking in terms of cruise at Mach 3. This corresponds with the design requirements of the Air Force's B-70 chemical bomber which North American Aviation is designing. And, as everyone knows, all J. L. Atwood, NAA president, needs to go before his directors with a proposal for a commercial transport version of the big bomber is a little encouragement from some solid source such as, say Pan American World Airways. Mach 3 airplanes will use stainless steel and titanium construction and thus will have growth possibilities in speed. At the first hint of cruise requirements stretching beyond Mach 3, Marquardt promises his salesmen will be knocking on the door of the airlines to talk about engines.

Waikiki Whoopee

There was surprise in traffic circles when United Air Lines came out of the first half of the year with passenger revenues up 11% even though it had no jets in operation. It was a surprise to UAL, too, which had forecast a loss of some $18 million in revenues to the jet competition. A big factor in UAL's piston-powered prosperity was its booming Hawaii traffic. Every flight to Honolulu goes out fully loaded these days. No wonder Pan American made a major shift in its jet plans and diverted delivery of its first Boeing 707-321 intercontinentals from the Atlantic to the Pacific division to cash in on the expanding volumes between the mainland and Hawaii. Actually, the limiting factor on Hawaii travel has become hotel space. A few years ago Hawaii was a remote dream for most travelers. The way it is going it will become as crowded as Miami Beach.

High Up Helistop

Builders of the new 25-story Lee Tower Building in the Miracle Mile district on Wilshire Blvd., in Los Angeles have advised the FAA they are planning a helistop with a 60' x 70' landing pad on top of the building approximately 250 feet above the street level. This is the latest in a series of rooftop heliports that have been mapped out for the Los Angeles area, but the only one operating is that of Los Angeles Airways on top of the terminal annex post office, exclusively for mail, no passengers. The Northrop Corp. has a good one on the building housing its corporate offices in Beverly Hills, but the city of Beverly Hills, so far, declines to OK its operation. One factor holding back rooftop heliports seems to be third-party liability.

A Pilot Turns In His Gear

Sam Peters has resigned as chief pilot of the Pacific-Alaska Division of Pan American World Airways and both management and pilots will miss him. He was held in high esteem on both sides of the fence. Sam was riding copilot in the Boeing 707 in the "dive" incident which took place on an Atlantic flight earlier this year when PAA pressed its supervisory flight personnel into service to fly the new jets pending agreement with the ALPA. The FAA ordered his pilot license suspended for six months. So Sam decided to turn in his ticket and call it a career. He had halfway decided to retire at 50 anyway, has a 1400-acre producing ranch and other business interests and doesn't need the money. We have no idea of the merits of the dive incident, but up in San Francisco the feeling is the FAA penalty was unduly harsh.

Lightweight Seat Interest

Richard Dick, who used to sell airplane seats to passengers (for Western Air Lines) and now sells them to airlines (for Burns Aero Seat), predicts some U.S. carriers will soon turn to very lightweight seats in trying to develop a commuter-type or aerobus service. These seats, sans pillowed head rests, sans recline, sans other comfort features, would weigh about 10 pounds per passenger place. With 32-inch spacing and enough leg room, Dick reports 60 of these very lightweight seats could be installed in a Convair 340, using the same bulkhead. The weight would be 600 pounds, or approximately 880 pounds less than only 44 seats in a standard configuration. Burns got into the very lightweight seat business by developing a seven-pound structure with canvas seat for Philippine Air Lines to up capacity of its DC-3s to 40 passengers. PAL's flights are short and its passengers are quite content, says Dick. Canvas seats wouldn't do for U.S. carriers, he concedes, but neither is there need to continue to provide reclining chairs and such trimmings for commuter service.

Ah, Those Champagne Flights

Western Air Lines' Electra schedule between Los Angeles and San Francisco is 1 hour and 1 minute. "Why the 1 minute?" somebody asked WAL president, Terrell C. Drinkwater. "That's because we're honest," said Drinkwater.

Can This Be True?

Story from Seattle says day after it was announced Pan American had made a conditional purchase of 10 C-130 turboprop air freighters from Lockheed, somebody at Boeing put a sticker in the cockpit of the 707 jet next up for delivery to PAA: "Help Stamp Out Turboprops."

And how about the survey on 707 transcontinental operations said to show the copilot is on the microphone for three hours?

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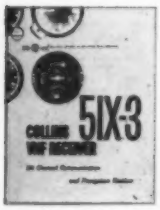

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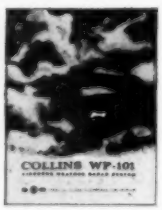

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By ERIC BRAMLEY

3 Lines Start Do-It-Yourself Ticketing

Do-it-yourself ticketing has been introduced by three airlines, and similar plans are expected to be adopted by other carriers.

American and Capital are offering commuter tickets, limited to specific routes, while Northwest's plan applies to its entire domestic system. Passengers can handle transactions on the telephone; waiting in line and picking up tickets in advance are eliminated.

American's tickets are good between Boston, New York and Washington, while Capital's apply to its new Chicago-Twin Cities route which opened Aug. 2. Both lines issue coupons in books of 10 for first-class flights only. Under AA's plan, the customer makes a reservation, then enters flight number, date and time information on the ticket and presents it when he boards the plane. A Capital passenger fills in name and address of the account, his signature, flight number, date and an agent's code number. Payment for AA and Capital books can be made in advance, or they can be charged to air travel plan accounts.

Capital reported that in the first three weeks of operation it sold 525 books valued at $142,000.

NWA's "Simplex" plan, good on first-class or coach, allows a customer to write his own ticket for any domestic destination. Because the plan is systemwide, payment cannot be made in advance, and the 10-ticket books are issued to air travel plans, NWA on-line credit cards, or block ticket accounts. No advance deposit is required and the passenger is billed for transportation used.

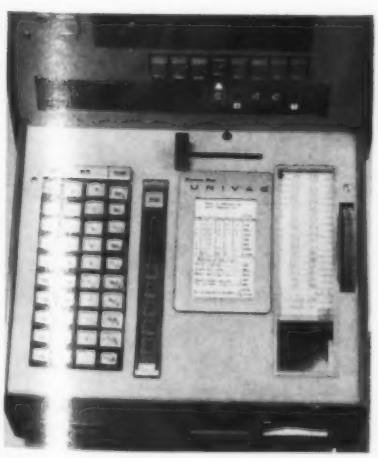
Univac Takes on Capital's Reservations

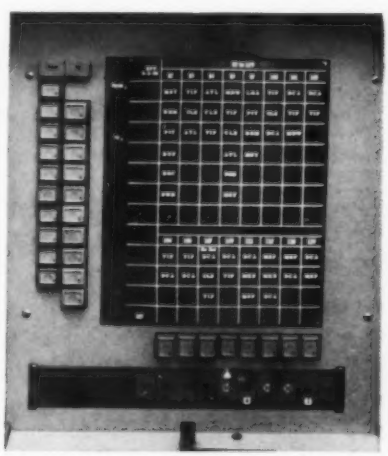
Automatic reservations are the order of the day and the newest is Capital Airlines' combination of a Univac file computer and a high-speed AT&T communications tie-in. Eastern is phasing in a similar system and Northwest is testing Univac between Chicago and Minneapolis.

Capital figures Univac will cut reservations processing from the past 45 min. to 1¼ hr. lag down to seconds. Some 175 agent sets spotted at 13 of CAP's 56 cities will give a direct view of flight seat status on a screen projected from 35 mm film slides (see photos).

The complete network will run about $29,000 in rentals per month. Additional agent sets, as system is expanded, will cost $42 a month.

The Univac-AT&T combination permits Capital to store reservations up to six months in advance, also gives agents up-to-date flight status of current operations in a matter of seconds simply by pressing the right buttons.





Exclusive Airlift Photos

These two panels are what the agent works with. At left is panel of buttons used to query Univac and a flight selector wheel to choose flight involved. At right is flight schedule projection with buttons to left for selection of trip information. Series of lights below confirm or deny space requested.

A Local Serves Dinner

Dinner is now being served by North Central Airlines on southbound Duluth-Chicago nonstop Convair flights. This is claimed to be the first time that a local service line has served full meals. Entrees on the one hour 46 min. flight, leaving Duluth at 5:30 p.m., include prime ribs of beef, breast of chicken with ham slice on toast, and lobster and shrimp Newburg. Caterer is Hans Friechle, owner of the Gourmet House restaurant, Duluth.

New sales program is being started by Frontier Airlines. Instead of stressing promotional type activities, as in the past, the program will be based primarily on direct sales, with emphasis on door-to-door selling. FAL expects to increase its staff of sales representatives from eight to 40.

TWA hostesses and pursers are being given "comparative shopping" assignments on competing international airlines. They ride as paying passengers, report back on good and bad points of competitors' service.

New and different ticket office was opened by Southern Airways in the Peabody Hotel, Memphis. It features a 20-ft.-long walnut desk, behind which are ticket agents and reservationists. Customer sits in front, can watch the agent make his reservation and see it recorded by the reservationist. Office also has a large availability board carrying a 16-day inventory of flights.

"Reflections on Jet Flight" of Carl Sandburg, famous poet-biographer, are now being heard on American Airlines' "Music 'Til Dawn" radio program. Sandburg, a passenger on AA's first transcontinental jet flight last January, recorded 15 announcements for use on the show.

Industrial vacation plan, similar to Christmas Club programs available at banks, has been instituted by Capital Airlines. When a firm signs a vacation package agreement with Capital, the firm's employes can select vacation packages from the airline's tour manual or from a group of recognized interline tours. Cost of the package is prepaid through payroll deductions. Plan is adaptable to almost any withholding method, including credit union deductions, bank vacation programs or recreational associations.

Well over half a million dollars is being spent by Delta to promote the debut of its DC-8, scheduled for Sept. 18 New York-Atlanta. Program includes full-page ads in newspapers in New York, Detroit, Chicago, Atlanta, Dallas, New Orleans and Miami, plus radio, television and 24-sheet posters. Also, Delta was the first major advertiser to schedule color ads on a regional basis in Saturday Evening Post and Time, and one of the first to utilize the eastern segment of Newsweek's circulation. Agency is Burke Dowling Adams.

ABOUT PEOPLE

IN THE AIRLINES

HALIBURTON

CHABOT

Capt. John H. Haliburton, 28-year veteran of Eastern Air Lines who has served in practically every post in the flight and operations departments has been elected v.p.-operations. **Ambrose L. Chabot,** another EAL 28-year veteran who came up through the ranks was elected v.p.-maintenance and maintenance engineering.

Newspaper publisher **Henry A. Satterwhite,** of Bradford, Pa., was elected chairman of the board of Allegheny Airlines.

F. M. Coates, a newcomer in the airline industry, was appointed assistant to the president of Northeast Airlines. **E. Daniel Morton** has been named director of market research and route development for NEA.

Samuel I. Fondiler, formerly comptroller, has been elected treasurer of Seaboard & Western Airlines.

FONDILER

Thomas F. Huntington, of Cresap, McCormick and Paget, management consultants, has been appointed exec. asst. to the president of TWA.

Rowan E. Waddy has been named New York manager for Qantas Empire Airways.

Matt Travis, formerly with TWA, has been named manager-revenue accounting for Continental Airlines.

Georg Stoecker, passenger sales manager for Lufthansa, has become general manager for Europe.

Henry J. (Jack) Grathwol, Jr., is now passenger sales manager for National Airlines in Miami.

James Y. K. Chin, formerly of Civil Air Transport, has been appointed Aloha Airlines' director of maintenance.

Nine experienced men have been promoted by Eastern Air Lines to key positions in air cargo: **Thomas H. Kneeland** to asst. cargo sales manager, based in New York City; **Edward M. McClane, Jr.,** to manager of air freight at New York International Airport; **Edwin Phillips** to same post at Newark; **Walter J. Chesney** at Miami; **Ray Swiatek** at Chicago-Midway; **A. V. Brown** at Atlanta, Ga.; **Joseph R. Adamiak** becomes supervisor of air freight at Boston; **Roderick J. DeBejar** at St. Louis and **Antulio Diaz** at San Juan, Puerto Rico.

Herbert L. Heyman, has been appointed comptroller of Seaboard & Western Airlines.

Stewart C. Bird has been named pubrel. director for Southern Airways.

W. Whitley Hawkins has been promoted to asst. to the manager of military and government transportation in Delta's Atlanta offices.

M. D. Nason, Jr., New York City DSM for TWA, has been promoted to director of sales and market development; **Fred M. Spuhler** succeeds Nason; **Kenneth S. Fletcher,** New York manager of pubrel., becomes Atlantic Region pubrel. director.

Eastern Air Lines has announced a number of promotions in its sales and traffic department: **H. Walton Cutshall,** assistant v.p. and Gulf Coast Div. sales and traffic manager, transfers to Midwestern Div., Chicago; **Jacob T. Hoffman, Jr.,** district sales and traffic manager, Houston, has been elected assistant v.p. and succeeds Cutshall; **Forrest T. Knox,** DSTM, Philadelphia, transfers to Houston; **Thomas A. Wiley, Jr.,** DSTM at Hartford, Conn./Springfield, Mass. area, transfers to Philadelphia.

AMONG SUPPLIERS

John M. Rogers, aviation consultant, has been named v.p.-sales for Ben Howard and Associates, Inc.

A. Paul Vance joins the General Aviation Supply Co., St. Louis, as v.p.-marketing. Vance comes from Monsanto Chemical where he was executive pilot and sr. sales engineer.

Carl Wootten becomes v.p. of L. B. Smith Aircraft Corp. He will coordinate and supervise marketing of all business aircraft.

Ted R. Thoren is newly appointed v.p.-engineering at Pesco Products Division, Borg-Warner Corp.

Robert J. Whempner, formerly chief pilot for RCA Flight Lab., joins Atlantic Aviation Corp.'s Grumman Gulfstream sales department.

Bryan Sanford Clark has been promoted to director of foreign operations-Europe, for The Garrett Corp. He will continue to operate from Garrett's Geneva office, which he has managed since 1956.

Charles A. Carroll, a co-founder of Aaxico Airlines Inc. has been named v.p. and manager of aircraft sales for The Babb Company.

John S. Inglis, former supt. of maintenance for Transcontinental Airlines, has joined Frederick B. Ayer & Associates as manager of operations.

Albert G. Handschumacher has been elected president of Lear, Incorporated, following resignation of **James L. Anast.** Handschumacher has been with Lear for over 14 years and has been a director and member of the executive committee since 1957.

Harold H. Warden, commercial sales manager for Link Aviation, Inc., joins Lockheed Georgia Division as Hercules commercial sales manager.

WARDEN

Air Commodore F. R. Banks is joining the Board of the Blackburn Group Limited, as well as the Boards of two companies within the Group—Blackburn Aircraft Limited and Blackburn Engines Limited.

Roland R. Witte has been named asst. to the v.p.-sales of Lockheed Aircraft Corp.; **William P. Kennedy** was named asst. director of market research in Lockheed's central sales organization.

James F. "Skeets" Coleman has been elected v.p.-marketing for Bill Jack Scientific Instrument Co.

IN THE AGENCIES

Howard W. Helfert, formerly U.S. representative to ICAO, has been named Chief of International Field Service Division of Office of International Coordination in FAA.

Maj. Gen. Raymond J. Reeves, USAF, replaces retiring **Maj. Gen. Frederic E. Glantzberg** as vice commander—MATS.

William E. Jackson has been appointed by FAA to head the Development Division, Bureau of Research and Development. Jackson was chief of the Technical Development Center Electronics Division prior to his new appointment.

OTHERS IN AVIATION

Byron F. Sherrill heads newly formed Aircraft Exchange Services Corp. He was formerly asst. to chairman of the Board of TWA and gen. mgr. of Lanica Airlines, Nicaragua.

SHERRILL

Rahland C. Zinn, base manager at Idlewild, has been elected v.p. of Lockheed Aircraft Service-New York.

Joseph A. Uhl has resigned as v.p. and asst. to the president of Continental Airlines to become an independent consultant on financial management in Denver.

EAL's Sid Shannon Retires

After 30 years at Eastern Air Lines and its predecessor Pioneer Pitcairn Aviation Co., Sidney L. "Sid" Shannon retires this month as senior vice president-operations. Sid Shannon joined Pioneer Pitcairn in 1929, served as station manager, dispatcher, reserve pilot and several supervisory posts before becoming operations manager in '36. He was elected an EAL v.p. in 1938, senior v.p.-operations in 1955.

SHANNON

HONORS

Don Davis, left, receives the first 25-year-service pin awarded in Continental Airlines from President Robert F. Six. Davis, superintendent of flight control, is the only original employe of Varney Speed Lines (CAL predecessor), still with the company.

FRENCH FLIERS CONQUER ANDES!

MERMOZ AND COLLENOT LINK ARGENTINA, CHILE!

Santiago, Chile, Feb. 2, 1928—The first successful commercial flight over the Andes mountains between Argentina and Chile was completed today when Jean Mermoz and Alexandre Collenot landed their Laté 25 monoplane at Copiapo, Chile, after a 900-mile flight from Buenos Aires, Argentina. The intrepid airmen overcame sub-zero temperatures and radiator difficulties to pave the way for a regular commercial air service between the two countries.

FIRST IN INTERNATIONAL AIR TRAVEL! Since the very beginning of international flight, the exploits of French aviators like Blériot, Bossoutrot, Noguès and Mermoz have made aviation history. Air France is proud to continue this tradition of French leadership in aviation by offering the most non-stop flights both ways between New York and Paris and the fastest jet service between Europe and the Middle East. And next year Air France will put into operation one of the largest pure jet fleets in the world.

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* *Jetstream is a service mark owned exclusively by TWA*

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• **In the terminal** at Anchorage International Airport are oil portraits of 24 famed Alaskan bush pilots and air pioneers who had been flying prior to 1932. Bob Reeve (Reeve Aleutian Airways) was prime mover in permanently honoring the air pioneers of the 49th state.

Of the 24, 13 have passed on, most of them from flying accidents. The names are: Haakon Christiansen, Lon Cope, Russ Merrill, Carl Ben Eielsen, Al Monson, Joe Crosson, Frank Dorbrandt, Alex Holden, Ed Young, Harold Gillam, M. D. Kirkpatrick, Maurice King, and Roald Amundsen, the latter Norwegian explorer being added to the list for his lighter than air "Norge" flight from Norway to Alaska in 1926.

Noteworthy, however, is the fact that of the 11 now living, seven are heads of scheduled airlines. These are: Shell Simmons, copartner of Alaska Coastal in Juneau; Art Woodley, president of Pacific Northern, Seattle; Noel Wien, Wien Alaska Airlines, Fairbanks; Bob Reeve, president of Reeve Aleutian, Anchorage; Ray Petersen, president of Northern Consolidated, Anchorage; Bob Ellis, president of Ellis Air Lines, Ketchikan; and Merle K. Smith, president of Cordova Airlines, Anchorage.

The other four are quite active. Sam White, 67, is flying for Wien Alaska. Murrell Sasseen is flying for Alaska Coastal. Jack Jefford is chief pilot for FAA in Alaska. Only one, Archie Ferguson, has left aviation and is operating a business in Kotzebue.

• **Normally,** the weather in California behaves in an orderly manner. But the easterly takeoff problem which is now creating so much trouble for carriers operating jets at Los Angeles International Airport is aggravated by the fact that there are times when winds or temperatures may change at the last minute. From his weather reports a Boeing 707 captain may start out anticipating a normal westerly takeoff over the ocean, and then find by the time he has lighted his engines and is ready to go that he has a three-knot tailwind to consider. 707 pilots say anything more than two requires a change in flight plan. For Runway 25L at Los Angeles, in the temperature bracket of 71 to 80°F, each knot of tailwind component means 1520 pounds. How do you go about finding 1520 pounds to remove after you are loaded?

• **Somebody at** West Coast Airlines can take a bow for a novel promotion. When the carrier opened service to San Francisco, it put on a big dinner in the Bay city and passed out "nicktties," so named for WCA's president, Nick Bez. They are good ties, too. But the catchline was "have a new tie to San Francisco."

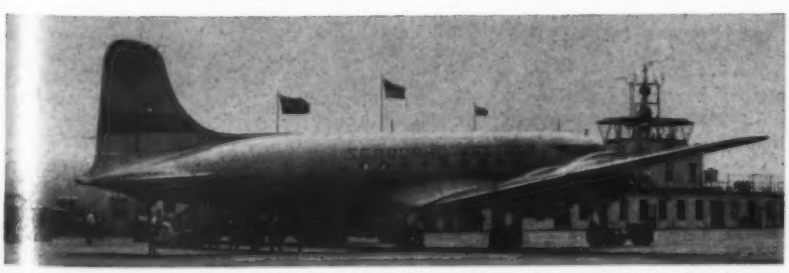
• **Increased aircraft** speed may be glamorous, points out Ray Kelly, who heads up United Air Lines' technical development section, but unless it actually reduces operation cost and/or achieves significant over-all time saving it cannot long be justified. Kelly cites examples assuming jets cruising at 550-600 mph: The average individual travels 20 miles to the airport from home —one hour. He spends half an hour checking in and to be seated in the aircraft. Block-to-block time, San Francisco to Idlewild (2635 miles) is 4.93 hours. It requires approximately 20 minutes to claim baggage and prepare for start of surface transportation. Another hour is devoted to the 20-mile trip from the airport to destination. This adds up to an over-all average speed of 346 mph. San Francisco-Chicago, using 1686 miles and block time of 3.67 hours, equals 261 mph. For San Francisco-Denver the average time drops to 185 mph. And for San Francisco-Portland it is 142 mph. In this case, the ground time is 2.8 hours vs. 1.5 block time.

• **An enterprising** Alaskan by name of Jim Brinkley (pictured in the July Holiday magazine) operates a sternwheeler called "Discovery" for tourists on the rivers near Fairbanks. A fast-thinking quipper, Brinkley took the local service airline delegates to the ALTA meetings for a river trip and kept them laughing. When he informed the crowd that the bar was open through courtesy of Fairchild Engine & Airplane Co., builders of the F-27, he exhorted: "Get High With the Best in the Sky." When you hear Marion Maxfield, the F-27 sales manager, use this slogan, you'll know where it came from.

• **Juan T. Trippe,** president of Pan American World Airways, had his passport lifted by the police at Vnukovo Airport in Moscow on the Nixon trip, but he was an innocent victim of a hassle over some outgoing films which the Russians insisted on censoring. Odd part of it was that Trippe didn't have the films and was not involved, but the Russians thought he might have some and used his passport as a means of holding up the airplane. Everything straightened out in half an hour, but the PAA president got a taste of what it is like to be behind the Iron Curtain.

• **Signs of the times:** SABENA has put up billboards along the more tedious sections of highways used by vacationists going south from Belgium. They read (in French): "You would have been there by now if you had used SABENA for your journey." The message makes a profound effect on the weary driver with his load of screaming children as the car plods its way through dreary countryside or over winding mountain passes. Pan American has erected signs at the top of the highest passes in Europe advertising "Fly PAA—the fast way to the U.S."

• **Shelley Without Poetry**—Airlines can look to slipping passenger service for the unwanted publicity in fast-selling "Inside Shelley Berman" record. Despite several below-the-belt punch lines, the 11½ minute parody on air travel and air service hits hard at many of the real weak spots that no longer make the air passenger 'His Royal Highness." It should be must hearing for personnel dealing with passengers.



Start of a big operation. Seaboard & Western Airlines DC-4 parks at Idlewild terminal after first landing at the airport on July 9, 1948. Note 35-ft. control tower (at right) which is still there, but has given way to giant, 11-story, 150-ft. tower. Terminal then was only one-third the size of the temporary passenger terminal today. For the complete story of Idlewild's growth, see pages 29 through 50.

Republic F-105—One
Depends Upon

New Wings for the Eagle!

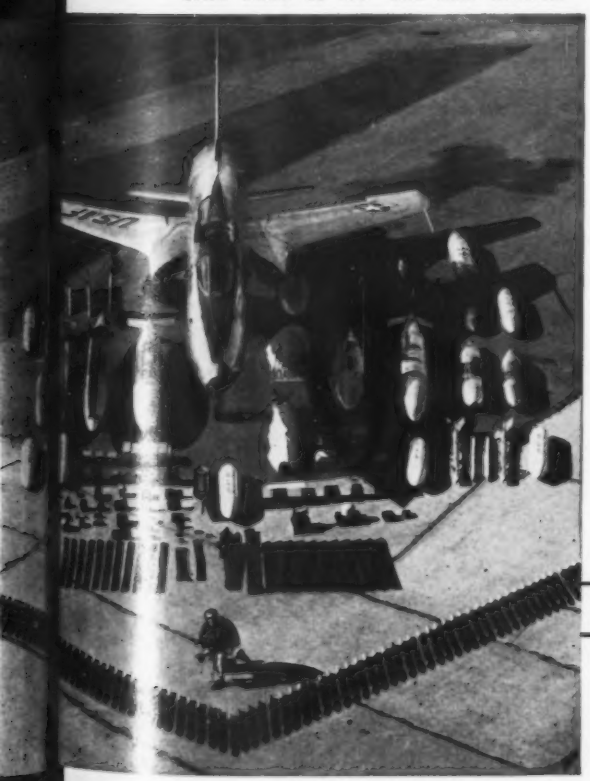
World War II's famed Eagle Squadron, now the 335th Squadron of TAC's Fourth Fighter Wing will soon be flying the F-105 fighter-bomber.

Plane "Bomber Formation" Holley for Fuel Control

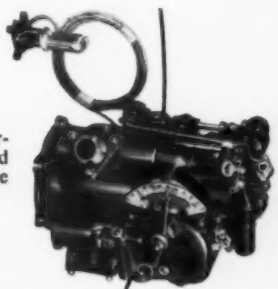
World's most powerful one man airplane, is reported to carry "as mu destructive power as an entire big bomber formation of World War II." Capable carrying an atomic bomb, the exciting Republic "Thunderchief" gets more tha 25,000 pounds of thrust from its Pratt & Whitney Aircraft J75 jet engine with afterburn

Holley designed, engineered and manufactures the main fuel control, ble governor and actuator for the J75 engine which has both military and commerc applications. The Holley R-95 control combines "small package" desi with light weight and exceptional performance reliability. It's another importa reason why more and more engine and air frame manufactur are turning to Holley for engine componen

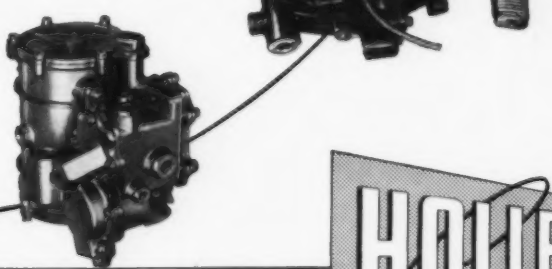
This impressive array of fire power shows why the Republic F-105 supersonic jet is often billed as the "one man airforce."



The R-95 is the military version of Holley designed and engineered fuel controls made for the J75 jet engine.



Both the Holley R-98 compressor bleed governor and its companion, the bleed valve actuator (below), are designed and manufactured for the J75 engines.



HOLLEY Carburetor Co.

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The Thriftmaster... a high density seat providing 18¾ inches of hip room with arm rests in position. This contoured seat which exceeds MATS and CAM requirements, features unlimited back positioning and removable arm rests. The Thriftmaster, with high shin clearance and a compact profile, permits close pitch installation of less than 31 inches. Maximum parts interchangeability is an added feature greatly reducing parts inventory.

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Atlas Control of NEA, Transocean Approved

In an unusual decision, CAB approved control of Northeast Airlines and Transocean Airlines by Atlas Corp. But it warned that approval is only for the five years during which the debtor-creditor relationship between Atlas and Transocean is to be liquidated. Decision was 4-1, with a strong dissent by Member Louis J. Hector.

CAB found that Atlas, which controls NEA, had acquired control of Transocean Corp. of California and through it, Transocean Airlines, a supplemental carrier. TCC is indebted to Atlas, with Atlas having the right to convert the debt into capital stock.

The fact that the Atlas-TCC relationship existed before CAB approval was sought violated the Act, CAB said. Nevertheless it approved the deal because to do otherwise might throw Transocean, which cannot get funds from other sources, into bankruptcy. Also, CAB said its staff was slow in processing the case. Common control of NEA and Transocean does not result in monopoly or restrain competition, the decision noted, but it added that approval "should not be regarded as a precedent . . ."

In a stiff dissent, Hector said the parties "knowingly and willfully violated the law." He added: "Surely we cannot as a Board live with the doctrine that the staff can make legal what is illegal merely by dragging their feet."

Riddle Gets Non-Subsidy Mail to Puerto Rico

Non-subsidy mail rights between New York and Puerto Rico were granted Riddle Airlines by CAB. Noting that Riddle and other cargo lines are in financial straits, CAB said it was not inconceivable that the company, like Slick, might "seek to suspend and dim the future of the all-cargo experiment."

The Board added it was "determined to preclude" this, at least until outcome of the domestic cargo-mail case. Non-subsidy mail revenue of $50,000 annually will help support Riddle's operations, it concluded.

Round Up Action

Actions

Iberia Airlines of Spain was denied authority to combine its Spain-New York flights with its New York-Mexico flights. CAB said request was beyond scope of the bilateral agreement.

Frontier Airlines' application for a guaranteed loan of $2,250,000 to be applied to purchase of five Convair 340 aircraft was approved.

Delta Air Lines was authorized to suspend service to Ciudad Trujillo, Dominican Republic, until April 1, 1960.

Guaranteed loan to Ozark Air Lines to be applied toward purchase of three F-27s was approved by CAB. Loan of $2,118,996 is at 5.5% annual interest.

Investigation into a $45 one-way fare between New York and Miami was set by CAB in a 3-2 vote. Board allowed the tariff to go into effect at least until the investigation is over. Fare for the new, high-density service, applies any hour of the day or night.

Mackey Airlines tentatively has been turned down on its application in the Southeastern Area Local Service Case to provide Atlanta-Ft. Lauderdale via Orlando service.

A new air carrier area investigation—the Southwest Local Area service case—was begun by CAB to study the air needs of the entire state of Texas and portions of Arkansas, Louisiana, Oklahoma, New Mexico and Colorado.

Applications

ATA, on behalf of its local service airline members, asked for expansion and extension of program allowing locals to trade air transportation for advertising and services. Previous top limit was $100,000 per year; carriers want it upped to $150,000 with easing of other restrictions.

Eagle Airways (Bahamas) asked authority to provide service between the Bahamas and Miami, Palm Beach, Ft. Lauderdale and Tampa via Havana.

West Coast Airlines asked to serve between Boise, Idaho and Las Vegas via Elko and Ely, Nev. and between Salt Lake City and Las Vegas via Provo, Utah and Ely.

Western Air Lines applied to suspend service at Jackson, Wyo., Logan and Ogden, Utah and Lewistown, Mont. for service by locals as provided in Montana Local Service Case.

Trans Caribbean asked for permission to operate between San Juan, Puerto Rico and Aruba, Netherlands Antilles, with high-density equipment. Also for approval to change its corporate name to Transportation Corporation of America; carrier will continue to do business under its present name.

Mail Rates

CAB intends to set final subsidy-free mail rate for Braniff Airways for its international division effective June 10, 1957. It said Braniff was overpaid by $31,000 in international mail pay for the June 4, 1948-Dec. 31, 1953 period and should repay the difference.

CAB intends to establish a new lower temporary mail rate for Lake Central Airlines of $4,317,648 for the Jan. 1, 1957-May 31, 1959 period and an annual rate of $1,732,990 beginning June 1, 1959.

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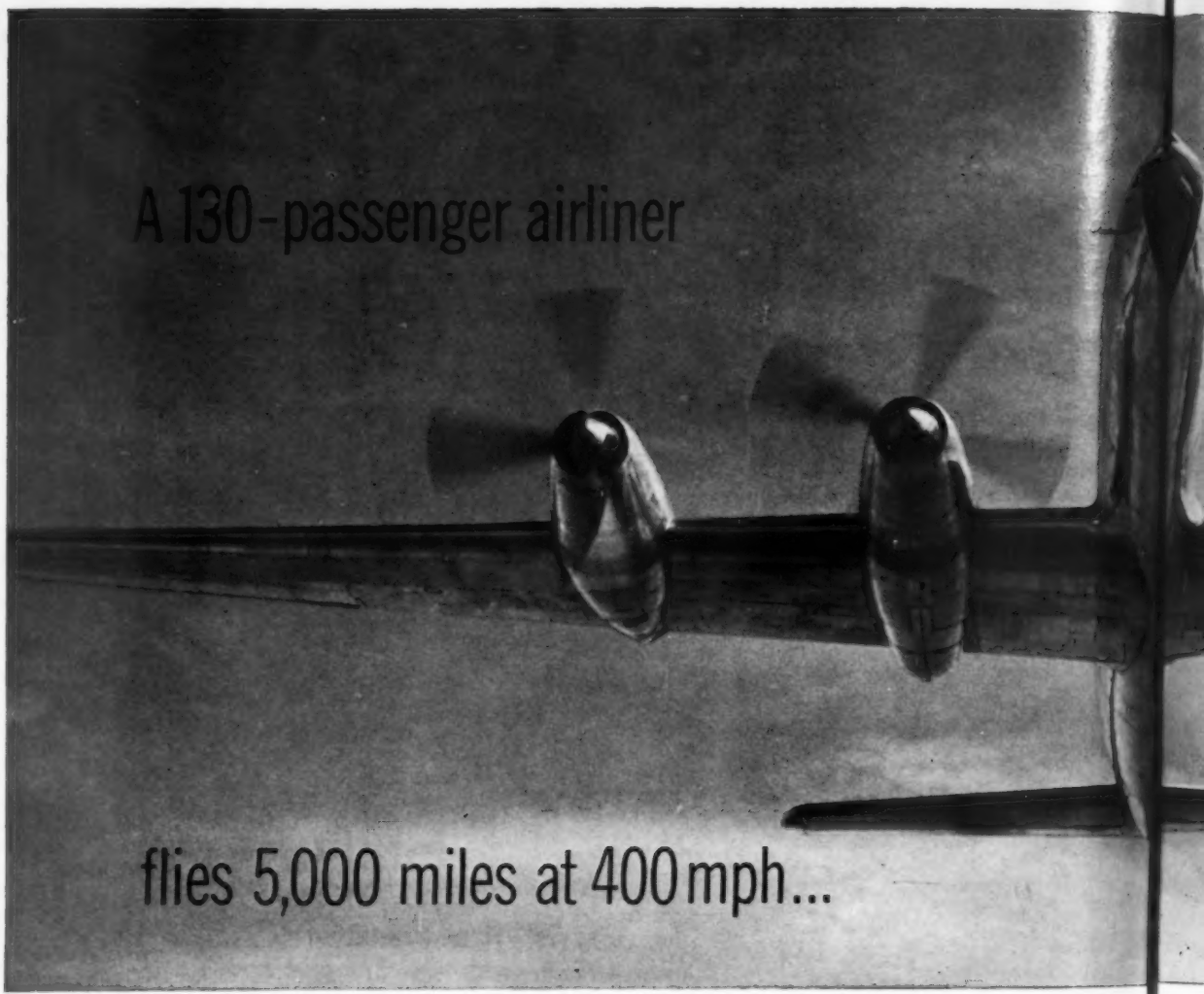
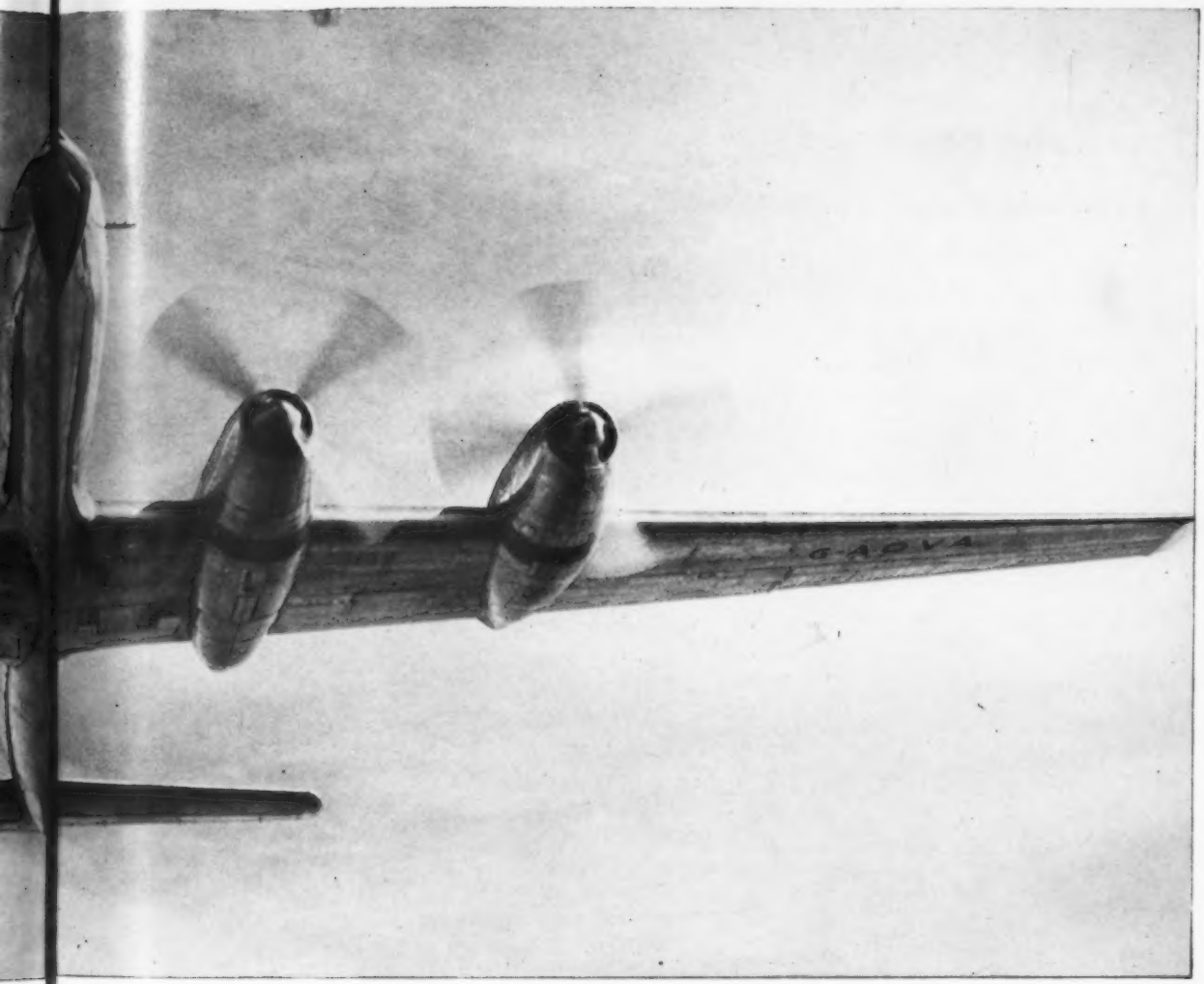


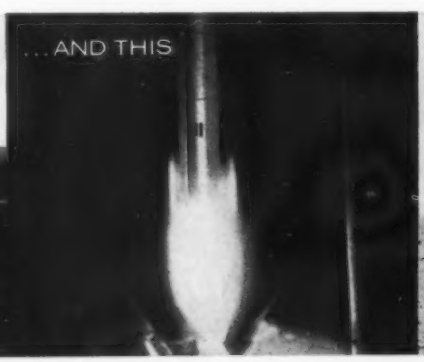
...AND BRISTOL SIDDELEY

One of the largest manufacturers of motive power units in the world, Bristol Siddeley Engines Limited produce the Proteus. A turboprop in the 4,000 hp class, the Proteus powers the Britannia airliner, in service with RAF Transport Command and ten airlines all over the world. The Proteus is perhaps the most dependable engine in the air today. It reached an overhaul period of 2,000 hours in under two years —a rate of increase never before achieved by any other engine, piston or gas turbine. Proteus derivatives have been designed for use as turbo-generator powerplants and as marine turbines.

BRISTOL SIDDELEY ENGINES LIMITED



E SUPPLY THE POWER



wo Bristol iddeley Maybach diesels ower this tish Railways diesel hyraulic locomotive—develop a total of 200 hp. A rge number of Maybach esel engines have been ordered by itish Railways alone.

The Bristol Siddeley Gamma rocket engine powers the Saunders-Roe Black Knight—Britain's highly successful space research vehicle. The Gamma, for a dry weight of only 700 lb, sends Black Knight 500 miles up into space.

The British Siddeley Marine Proteus powers the world's fastest naval vessels, the "Brave" class Royal Navy patrol boats. Three Proteus deliver a total of 11,400 hp—give these boats a speed of over 50 knots.

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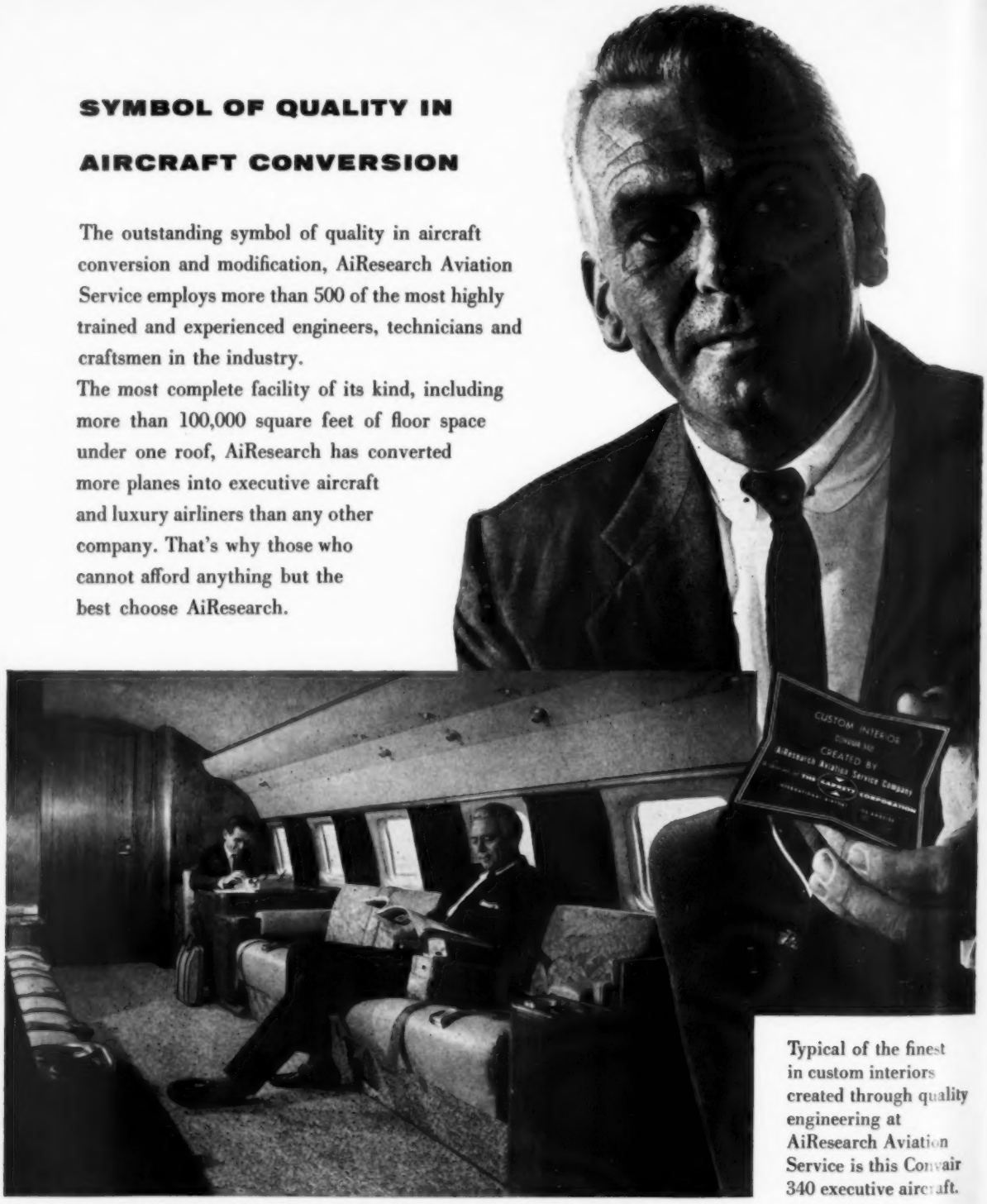
The outstanding symbol of quality in aircraft conversion and modification, AiResearch Aviation Service employs more than 500 of the most highly trained and experienced engineers, technicians and craftsmen in the industry.

The most complete facility of its kind, including more than 100,000 square feet of floor space under one roof, AiResearch has converted more planes into executive aircraft and luxury airliners than any other company. That's why those who cannot afford anything but the best choose AiResearch.



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Flight recorders occupy the spotlight in this month's equipment review. Of the five models selected, two produce a magnetic record, two use a stylus and foil system, and the fifth is purely electrical. All provide an indication of structural stresses and operational characteristics over an extended period, but vary in weight and operating time.

LOCKHEED

Lockheed Aircraft Service, Inc., Ontario, Calif., has an electro-mechanical recorder which utilizes a stylus and foil system. The unit will measure barometric altitude, vertical acceleration, compass heading, time intervals and structural stress. It will operate for 150 hours, and is designed to withstand 100G shocks, salt-water immersion and 1,000C flame temperatures. The LAS recorder is the biggest seller to date with a total of 256 sales including a recent reorder by American and Continental and new sale to National. The unit has been in operation with airlines since the introduction of the 707 in October, 1958.

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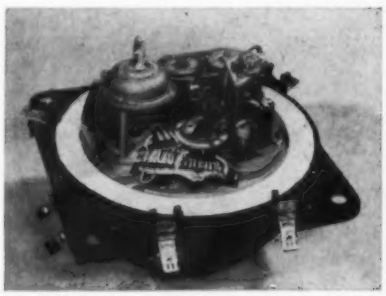

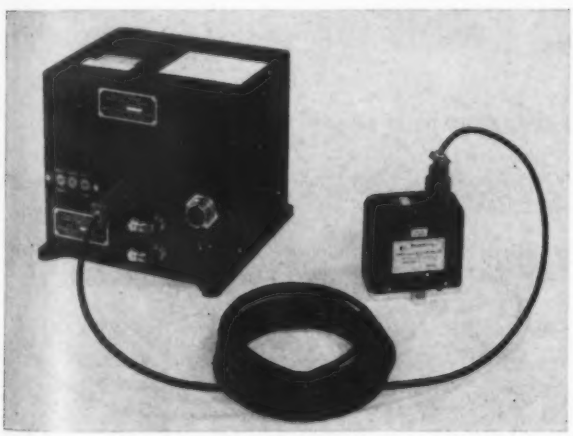

EMERSON

Emerson Model No. ERP-7420, built by the Emerson Radio and Phonograph Corp., Silver Spring, Md., is a 20-lb. magnetic recorder without tubes or transistors. The device records DC signals without modulation, using gyros. 50 hours of data can be stored on up to nine channels on 1 in. tape. The unit is designed to military specifications for vibration, and has been sold extensively to military services.

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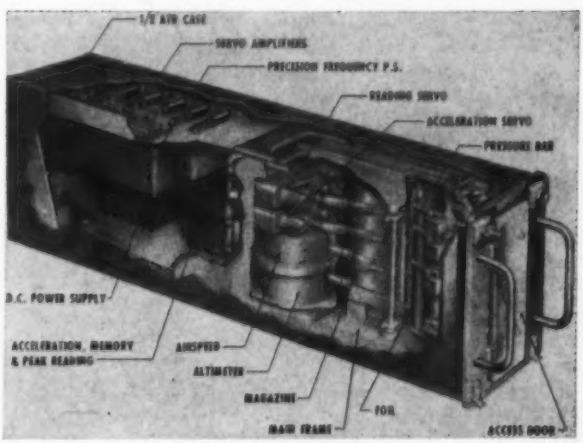

WASTE KING

Waste King Corp.'s Technical Products Div., Los Angeles, is marketing a 20-lb. foil recorder which has an operational capacity of 200 hours. With a maximum cost of $6,500, the Model 5424 flight recorder offers up to 30 channels including 24 analog, time, trip and date and four binary channels. Waste King has already sold 176 units to United, Eastern, SAS, Northwest and Swissair.

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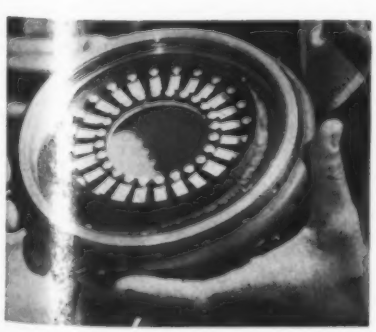

ORGILL

A 10-lb. crash recorder designed by Robert H. Orgill, Osborne Park, Western Australia, produces a flight record by electrical discoloration of a series of detector panels wired to vulnerable parts of the aircraft. The instrument contains its own batteries, and a miniature tape recorder which can be wired to record pilot statements preceding an accident.

Circle No. 4 on Reader Service Card.

ROYSTON

Another magnetic recorder (not pictured) manufactured by Royston Instruments, Ltd., Chertsey, Surrey, England, weighs 40 lbs. and costs $7,000. The instrument stores data on engine behavior, airframe pressures and flight performance, and contains an ejection device, float and dye marker to facilitate recovery in event of a crash.

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*Pictured above is an under-construction view of a Delta Airlines hangar, main jet overhaul and service base, at Atlanta, Georgia, Municipal Airport. Efficiently hangars all the different sizes of their modern family of jet transport planes.

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The super-structure shown above is 420 feet long (with no interfering supporting columns) and 178 feet in depth (12′ more than the width of a football field), the interior clearance is 48 feet in height (taller than a 5 story building) and the main column is taller than a 9 story building. This is the second Jet-Age ERWIN-NEWMAN hangar constructed for Delta Airlines, the other at Love Field, Dallas, Texas.

ERWIN-NEWMAN Cantilever type construction, engineering and fabricating has proved to be the efficient and economical answer for hangar requirements for fixed base operators, corporations, airports and airlines throughout these United States. ERWIN-NEWMAN has designed and constructed over 350 commercial hangars in the last fifteen years. This "hangar know-how" can save you money in initial cost and hold to a minimum future expansion cost as needed.

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Aircraft Workstands

Dexion, Ltd., London, is building workstands from its special Dexion slotted angle. The platform structures are cut with slots and holes, similar to an erector set.

The beams can be assembled in the desired form by the user, and then bolted together. Dexion is now in use by many international airlines and foreign manufacturers.

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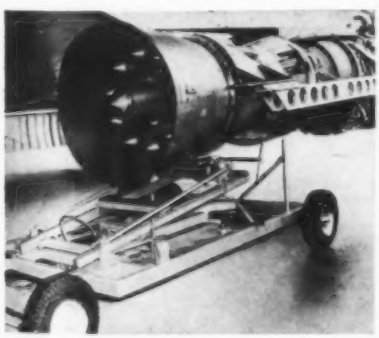

Noise Suppressor

Industrial Acoustics Co., Inc., New York, is building a trailer for portable ground noise suppressors. The unit weighs 1,500 lbs. and has a hydraulic lift mechanism which elevates the suppressor to the engine mounting arms.

Also a universal swivel mounting platform with quick-disconnect pins is included for attachment. Attach time is said to be 10 minutes. Trailer is of structural steel and comes with four pneumatic tires.

Circle No. 7 on Reader Service Card.

Vented Battery

The Oxide Industrial Division, Electric Storage Battery Co., Philadelphia, has developed an integral manifold vented battery for airplanes.

The optional manifold feature allows the battery to "breathe," thus eliminating heavy, liquid-tight containers for venting gases outside the fuselage. The integral manifold can be attached to the normal vent tubing on the batteries.

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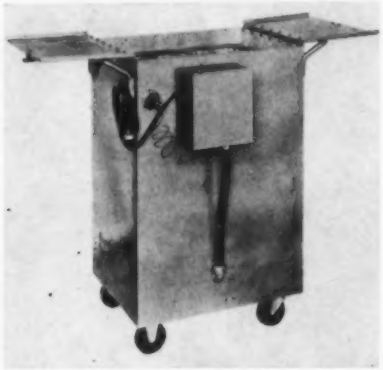

Portable Degreaser

King Co., Port Reading, N.J., is marketing a degreasing machine for portable chemical vapor cleaning. By using a thermal switch to prevent escape of the chemical vapor, King has eliminated the need for cumbersome water piping.

The degreaser also features optional circulating spray, and automatic off-on in case of electrical failure. The unit comes in five models, from 115 v ac and 1,500 w to 220 v ac and 5,000 w.

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Passenger Ramp

Bil-Jax, Inc. of Archbold, Ohio, is custom-building 12 passenger loading stands for Continental Airlines' "gold

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carpet" 707 flights. The ramp is mounted on a Dodge truck chassis fitted with a molded fiberglass frame. Hydraulic positioning control is from the platform atop the ramp. Electrical system is 110 v.

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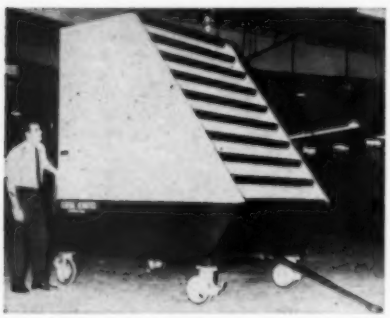

Intake Noise Suppressor

An intake noise suppressor developed by General Acoustics Corp., West Los Angeles, and being purchased by United Air Lines, is said to make large reductions in high frequency noise. It also guards against ingestion of foreign objects and injury to line personnel. The unit is 9 ft. long, 10 ft. high, and 6 ft. wide. It weighs 2,000 lbs. and is mounted on rubber tires.

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Turbine Control

An engine control system for lightweight gas turbines in the 100 to 750 hp range has been produced by the Engine Equipment Section of Bendix Products Division, Bendix Aviation, South Bend, Ind.

It contains a main fuel control, a power turbine governor for free turbine engines, and an optional air temperature compensator. Total weight is less than 4 lbs.

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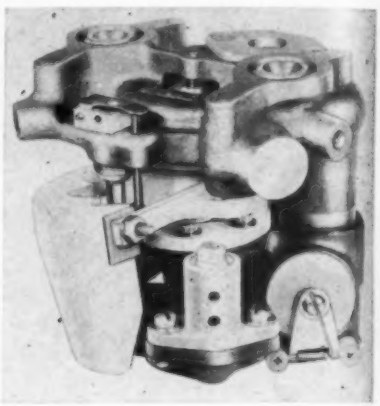

Fuel Vent

A dual-purpose aircraft fuel tank vent and pressure control valve is being produced by Aero Supply Mfg. Co., Inc., Corry, Pa. It permits air to escape from the tank during fueling, but prevents spillage during normal flight maneuvers. Included are independent pressure and suction relief valves.

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Water Filter

Ronson Hydraulic Units Corp. Pasadena, Calif. has designed a water filter

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and cartridge for airline use which can filter up to 2,000 gals., depending on flow rates. Said to be half the size and weight, and require half the maintenance time of ordinary units, the filter is based on a steel or nylon body with replaceable aluminum cartridge. Total weight is 1½ lbs.

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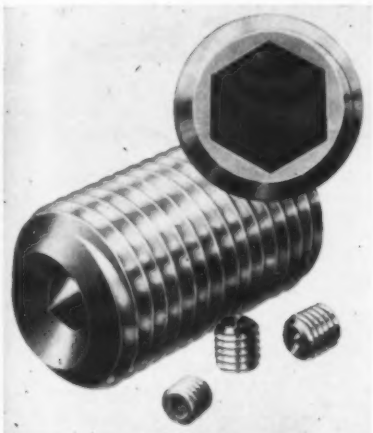

Set Screw

Parker-Kalon, a division of General American Transportation Corp., Clifton, N.J., is manufacturing a W-Point socket set screw. It is said to offer high holding power through the use of a cone point centered within the cup edge of a socket set screw.

The cone makes contact with the engaged work before the cup edge. This provides 30% more backout torque, and up to 50% higher resistance to rotary slippage and vibration.

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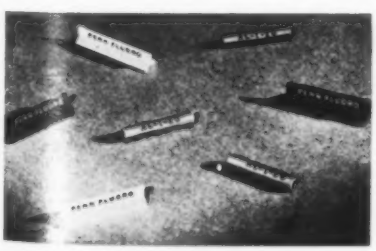

Tubing Marker

Tefl[illegible] tubing can now be indelibly printe[illegible] for identification with a process develo[illegible]d by Pennsylvania Fluorocarbon Co., [illegible]., Philadelphia. Tubing sizes that can b[illegible] printed range from ⅛″ ID to 1⅛″ [illegible]D, spaghetti tubing from AWG 0 to [illegible]±32, instrument tubing from 0.010 [illegible]ID through 1″ ID.

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INFO FOR THE ASKING

Galley [illegible]tems—General Electric Co., Ltd. of En[illegible]and, London, England, has published [illegible] booklet on its lines of electrical equipment for aircraft. Included are descriptions of grill boilers, bulkhead fans, water urns, heaters, and relays.

Circle No. 17 on Reader Service Card.

Airplane weather protection—Manual from Herculite Protective Fabrics, Newark, N.J. describes application of Herculite vinyl coated nylon fabrics as weather covers for airplanes. Gives prices, specifications, and includes material sample.

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Vapor removal—Industrial Development Consultants, Inc., N.Y., is offering an eight-page brochure describing a vapor removal system to eliminate noxious and explosive vapors of jet refueling.

Circle No. 19 on Reader Service Card.

Hydraulics, pneumatics—Catalog from Lenz Co., Dayton, O. contains flow charts, J.I.C. piping, and information on "O" Ring seal tube fittings, flare fittings, tube benders, and other components.

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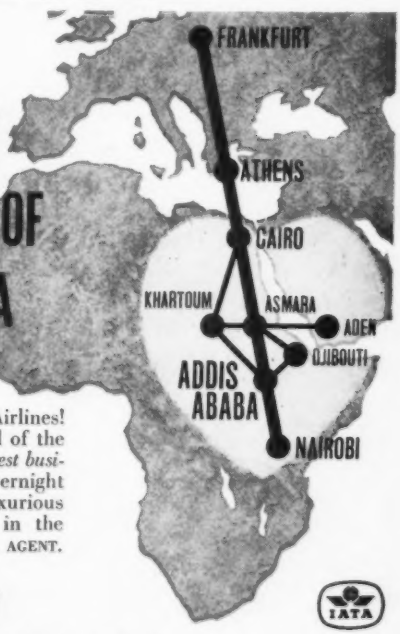

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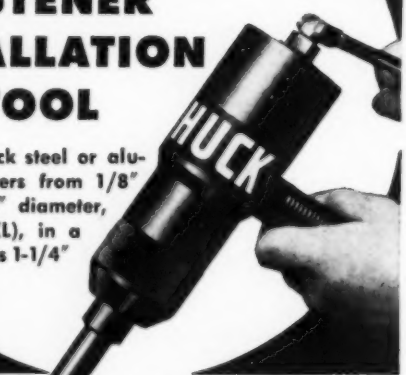

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NOTES ABOUT SUPPLIERS

• American Airlines has chosen the Preflite Industries' Air-Torq engine starter for ground duty in high density areas. American will use the units on both the 707 and the Electra. Deliveries are to begin in mid-September and follow at a rate of one per week. Starters will be based at Idlewild, Los Angeles, La-Guardia, and Midway. Other Air-Torq customers include Western Airlines, Cathay Pacific, and Ansett-ANA. Preflite is a division of Avco Corp., and has its plant in Paramount, Calif.

• Greer Hydraulics, Jamaica, N.Y., has received a USAF order for 59 Hydraulic Test Stands. The award, made through the Warner Robbins Air Material Area, totals $496,106. Greer will manufacture the units at its New York International Airport plant.

• Lockheed Aircraft Service, Ontario, Calif. and Waste King Corp., Los Angeles, have announced new orders for their respective flight recorders. LAS has raised its total sales to 229 with new orders from Boeing, Douglas, and Convair. Waste King has received new orders from SAS, Northwest, and Swissair for 56 units, which brings total sales to 176.

• Ledkote's Aircraft Division, Port Jefferson Sta., N.Y. has been renamed Lawrence Aviation Industries, Inc. Lawrence specializes in building aircraft exhaust systems and the overhaul of cabin superchargers and transmissions.

• The Whittaker Controls Division of Telecomputing Corp., Los Angeles, has set up two stock distributing centers in the U.S. Eastern distribution will be through Standard Aircraft Equipment Co., Inc., Mineola, N.Y. Whittaker will handle the western U.S. from its Los Angeles headquarters. The eastern shop is being established to speed up service to airline customers.

• Boeing has announced sale of seven Turbostarter units to Swissair, plus one spare turbine compressor. The Swissair order, first of the European carriers, brings total of Turbostarters sold to date to 90.

EN ROUTE

Wayne W. Parrish

Two Haircuts in Russia

A Side Trip to Alma Ata ... Then Intourist Plays Host

Kazakhstan is one of the largest of the so called Soviet "Republics." It is five times the size of France. Its capital is Alma Ata which is about 440 miles northeast of Tashkent in Central Asia, and about 2000 miles southeast of Moscow. It is on an old caravan and now truck route connecting China with Russia and today there is a weekly flight by the Red Chinese airline. Not many tourists go to Alma Ata.

Bert Hemphill and Dan Scariano, the well-known travel agents of Los Angeles and Beverly Hills, were on our flight. After take-off the IL-14 flew directly over the big city of Tashkent and out over desert country, much of which has been reclaimed by irrigation. From the air this new agricultural development seemed quite impressive and on a vast scale. To the east of us all the way to Alma Ata was a range of high snow-capped mountains. Beyond the range was Red China. It was a picturesque, scenic trip.

Alma Ata is a relatively new city of about 400,000. It had no railroad until 1931. Today it is 4 hours by jet to Moscow. Streets are tree-lined and there are many individual houses, in contrast to the packed apartment-house living in the west of the USSR. There is virtually no industry.

But if the city is new, the hotel wasn't. Our room had an exceedingly strong odor of disinfectant. The beds were okay but the rooms were cold, comfortless, and flies were everywhere. There were heavy velvet drapes, bronze sculptures, and hand-embroidered bed covers.

The small dining room was on the top floor. A big luncheon had been prepared for our arrival, decked with flowers, cut glassware and table settings. The other customers regarded us with much curiosity. The food was about the best I had had in the Soviet Union, good soup and meat, excellent melons and by far the best apples I had seen.

We visited a movie studio, one of the biggest in the USSR, but we didn't see much except a travel film and some actors wandering about.

We also visited a collective farm. So far I had successfully avoided going to one of these farms, but got caught this time. It's an old routine for the tourists —the Russians seem to think these farms are showpieces. I'm no expert but I grew up in the farm country and my conclusion was that this one I saw was quite primitive and behind the times, pathetically so, with the typical Russian waste of manpower. They did grow some very excellent cabbages and apples, however. Obviously conditions for agriculture are good in this part of Russia if they could become efficient in farming.

At night we went to the Alma Ata opera house to see a ballet called Shurale with music by the contemporary Tartar composer Yarulin. I was disappointed. I've seen the best of Russian ballet and it's without peer, but this production was only fair, the music so-so, and the dancing mediocre. Good ballet in the USSR is like everything they have that is good—rare. But the big opera house was crowded and everybody seemed to be having a great time. People in Alma Ata seemed to be more relaxed and open.

I would not rate Alma Ata high as a tourist attraction. If the hotel wasn't such a dog, it wouldn't be a bad place to relax for a few days. The air is good and the mountain scenery to the east is excellent.

Returning to Tashkent, our plane stopped at Freunze, capital of the small "republic" of Kirghizstan. Not a large city, but much construction underway, including at the airport. The area is agricultural and much of it is desert. Close at hand is the snow-topped mountain range bordering on Red China.

Back in Tashkent, my wife and I were to leave next morning on a twin-engined IL-14 for Kabul, Afghanistan; Hemphill and Scariano remained in Alma Ata for another day. But after we had gone to the airport and waited quite awhile, the Kabul flight was cancelled because of late arrival of the flight from Moscow with connecting passengers.

So with our extra day we went shopping and I set some sort of record buying a fancy embroidered Uzbek shirt. Price: $40, believe it or not, but don't forget that USSR is the classless society where some are more equal than others. In the leading department store, absolutely jammed with shoppers, I tried on various shirts in the only tiny dressing room used also by stout Soviet ladies trying on what goes for lingerie in Uzbekistan. We all is quite informal down in Tashkent. After a lot of trials, and assisted by the top Intourist manager for Uzbekistan, Benjamin Abramov, I got my shirt. And it's a beauty of pure linen with very handsome handwork.

We also drove into the country, but not very far. Soviet security really came into the open this time. Our interpreter, Raya, informed me that the Foreign Office had given instructions that I could drive out only one road for a distance of about 10 miles, turn around and come back, and no stops en route. Sure, they let you go anywhere you want to go in Russia! Until you want to go someplace they don't want you to go. So, accompanied by several escorts, I had my ride out and back. Saw some nice cotton fields and part of the city. That's all—except trucks coming to town carrying Red Air Force officers for a Saturday night fling.

Bert Hemphill (left) and Dan Scariano at collective farm.

WWP at collective farm near Alma Ata.

Since Mr. Hemphill was then president of the American Society of Travel Agents, Intourist was going all out for him. He and Scariano were due back on the afternoon airplane. Mr. Abramov was preparing a big party to celebrate Bert's 62nd birthday, and kindly asked my wife and me to join. He also asked us for help. They had heard about candles on cakes but didn't know how to fix up the cake properly so my wife gave all the necessary advice.

Late afternoon Mr. Abramov, my wife and I, several Intourist interpreters, all carrying bouquets of flowers, met the plane from Alma Ata. The welcome to Hemphill and Scariano not only bowled them over but caused wonderment to the Russians at the airport.

That night was one to remember. I foregathered with Bert and Dan for some Scotch and bourbon as a prelude. No soda water available and after much effort we got a very little bit of ice. About 9 p.m. we went down to a private dining room which was laid out most lavishly with flowers and dishes of all kinds. The food was abundant and good. The toasting began with vodka and went on through wines and champagne and cordiality was flowing like the Yukon.

At the proper time my wife went to the hotel kitchen, arranged the candles and lit them, and carried the lighted cake through the main dining room to the utter astonishment of the many Russians and Uzbeks, and arrived at our private room. Hemphill was mightily touched and the Russian hosts were no end pleased at the surprise.

It was the one and only truly liquid evening I had in the USSR with toasts by the dozens. Dan finally gave up and went to bed. Bert's responses to toasts got a little sluggish and confused, but he made it to the very end. The party broke up with exhortations of cordiality and friendship, a very gala time indeed, and I finally hit the hay sometime after midnight. Intourist had done its hospitality best in Tashkent and could take quite a few bows.

Aircraft Data Cards

Aircraft selected for the data card series in this issue of *AIRLIFT* are three new British designs aimed at world-wide commercial markets. They are the Short Britannic SC.5, the AVRO 748, and the Armstrong Whitworth Argosy.

The Britannic is being built for the RAF.

The AVRO 748 has the green light for construction, and should fly in early 1961. It is designed for the DC-3 replacement market.

Armstrong Whitworth's Argosy has been selected by Riddle for cargo operations, and the company hopes to make more sales in this country in the near future.

SHORT SC.5 BRITANNIC

Aircraft Data Card
September, 1959

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AVRO 748

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ARMSTRONG WHITWORTH 650 ARGOSY

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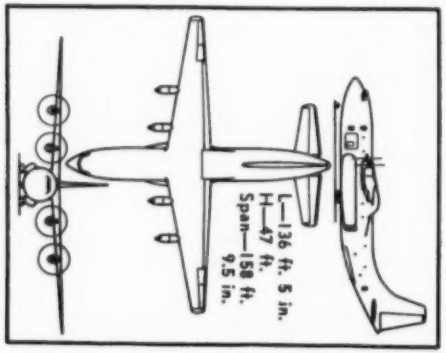

SHORT SC.5 BRITANNIC

TYPE: turbine-powered military and civ cargo/personnel transport. WEIGHTS: emp —107,155 lbs.; gross—218,000 lbs. POW PLANTS: four Rolls-Royce R Ty. 12 rated 5,090 shp plus 1,075 lbs. s. t. PERFORM ANCE: cruise speed—385 mph; range wi full tanks and 25,000 lbs. payload—5,580 MFR: Short Bros. and Harland Ltd., Belfa N.I.

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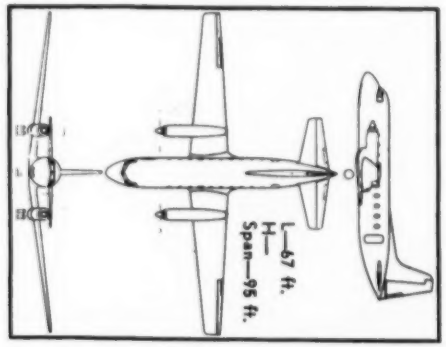

AVRO 748

TYPE: 36/40 passenger feeder-line turbopro WEIGHTS: empty—24,334 lbs. (with full gross—33,000 lbs. POWERPLANTS: two Rol Royce Mk. 514 Dart turboprops. PERFORM ANCE: cruise speed—230 kts.; range wi max. payload 580 n.m. MFR: A. V. Roe Co., Ltd., Manchester, Eng.

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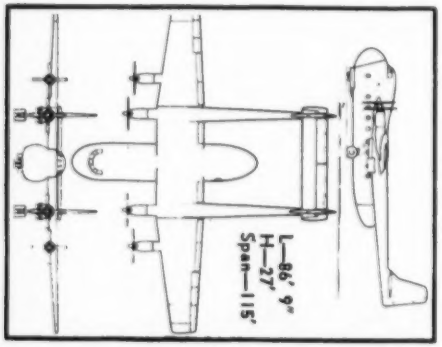

ARMSTRONG WHITWORTH 650 ARGOSY

TYPE: 80-passenger 4-engine turboprop tran port. WEIGHTS: empty 45,350 lbs.; gros 82,000 lbs. POWERPLANTS: (4) Rolls-Roy R. Da 7/2; rating—2,100 eshp. PERFOR ANCE: cruise speed—296 mph; initial rat of climb—1,200 fpm; range with 3,300 g fuel capacity—2,600 mi. MFR: Armstrong Whitworth Aircraft Ltd., Baginton, Nr. Coventry, Eng.

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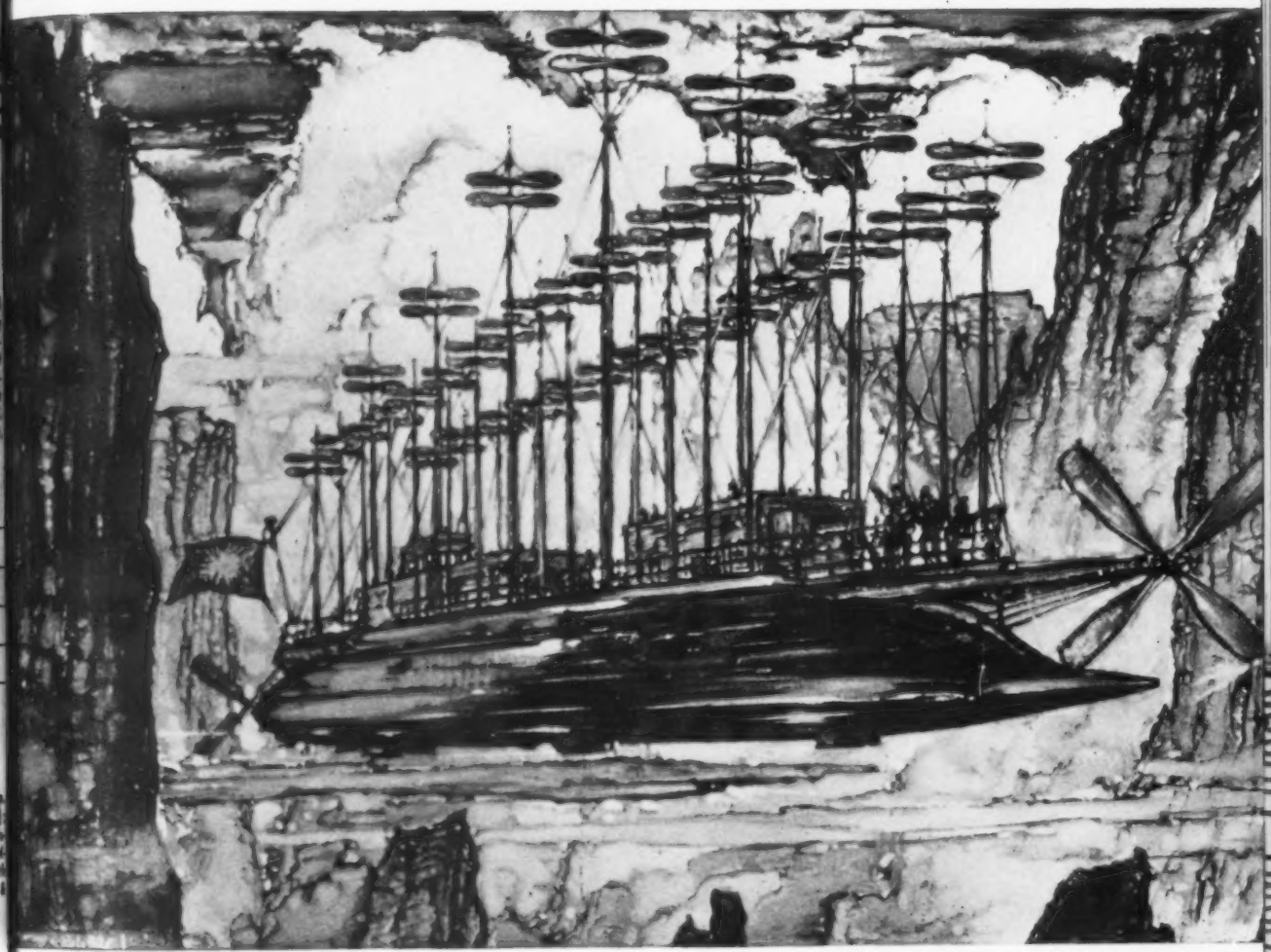
Propulsion through the ages . . .



"Helicopter-cum-autogiro" visualized by Jules Verne, 1886

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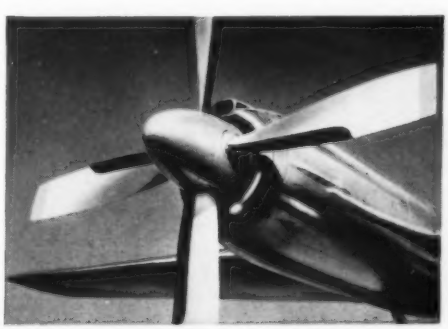

Rotol Incorporated after-sales service throughout the United States provides immediate spare parts delivery, technical service on propeller operations and applications.

For information on Rotol products and after-sales service, call Rotol Incorporated, 409 Jefferson Davis Highway, Arlington 2, Virginia. Phone OTis 4-6290

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GPL track navigation computer TNC-50

continuous readings of distance to go
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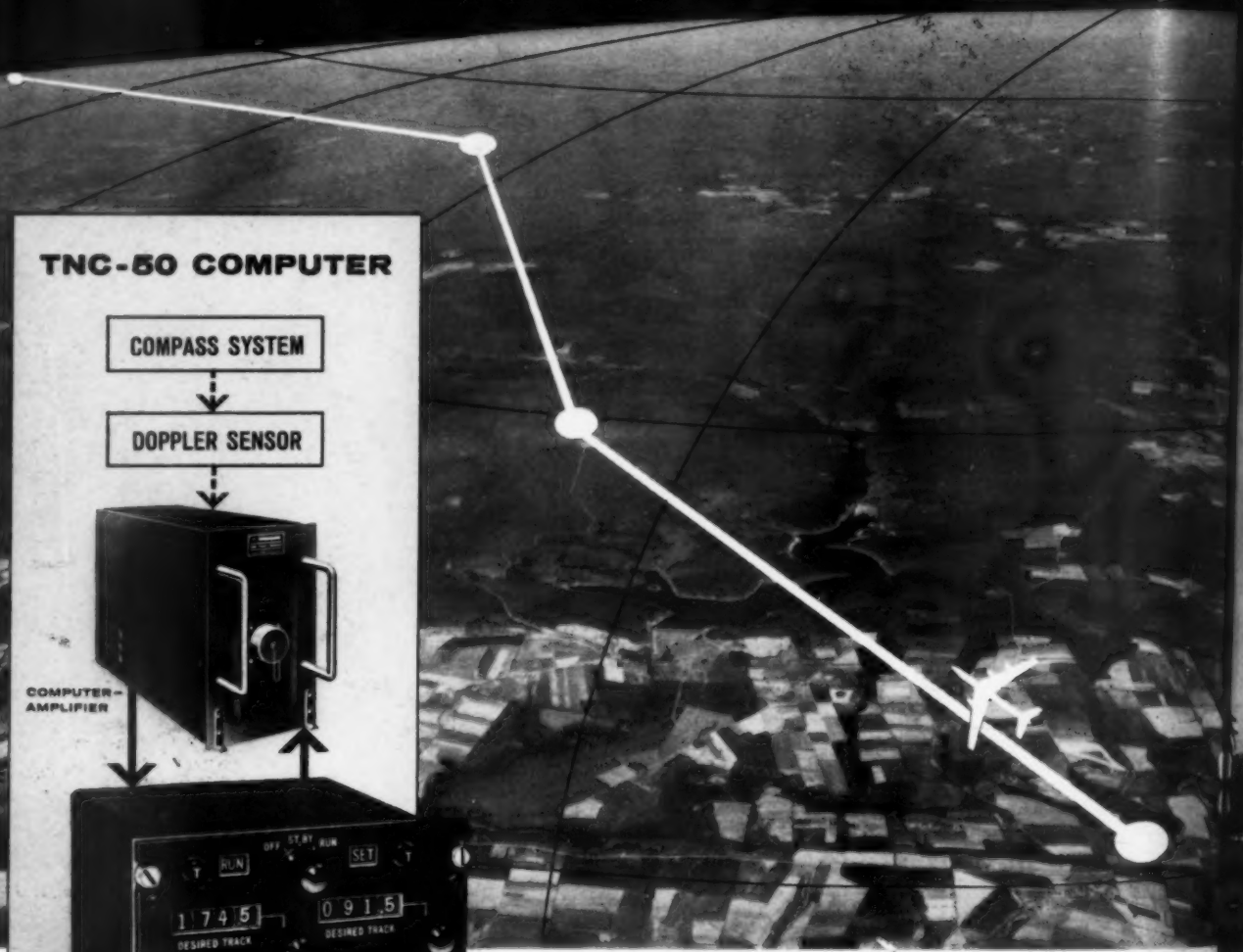

TNC-50, GPL's new Track Navigation Computer, provides direct outputs of distance to destination and distance left or right of track. Designed to function with ARINC and other Doppler sensors, and any modern aircraft heading reference, the TNC-50 provides additional outputs for flight directors, autopilots, and attachments.

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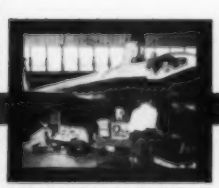
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